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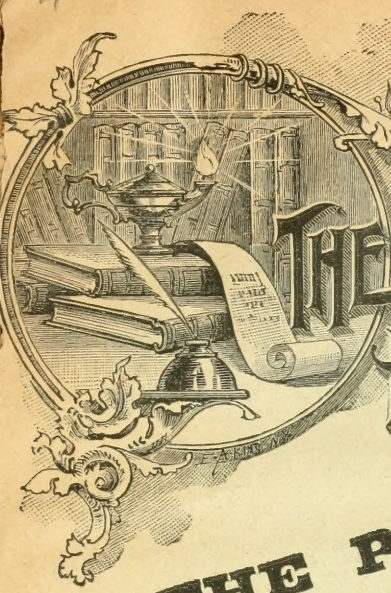

THE PEOPLE'S HAND BOOK SERIES

THE PRACTICAL

Guide to Floriculture

By EBEN E. REXFORD.

F. M. LUPTON, PUBLISHER,
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The Practical Guide to Floriculture.

By EBEN E. REXFORD.

How to Have a Good Flower Garden.

Most lovers of flowers will want a garden if conditions are favorable to their having one. Those living in the country will find few difficulties in the way, but those living in the city will often have "to make a fight of it" to overcome the conditions which prevail there. But "where there is a will there is a way" holds good here as in other undertakings, and the woman who has a genuine love of flowers in her heart will contrive to have at least a few common kinds growing in her back yard, if she lives in the city where front yards are the property of the wealthy.

Let me give a few simple, practical instructions about making a garden in the country, and the dweller in the city who would like to grow a few flowers for herself can apply them to her gardening operations as completely as possible, being sure that the nearer she comes to having her city garden prepared like the country garden the surer she will be of getting good results. Of course she cannot overcome all unfavorable conditions, but she can attempt to do so, and the more successful her attempts the better her chances of having good flowers.

The initial step in making a good garden consists in having the ground spaded or plowed at least a foot deep. Do this as early as possible in spring. You need not try to pulverize it at the time of spading or plowing. It will generally be so wet and heavy at that time that this cannot be done with any degree of success. Let it lay and take the benefit of a sun-bath for a few days. Gradually the water will drain out of it, and in a week's time you can go over it and knock the chunks of soil apart with a hoe.

After this is done, spread a liberal application of manure over the bed, and take especial pains to work this in well with the native soil.

The best manure is that from the cow-yard. It should have lain long enough to become thoroughly rotten. If black and easily crumbled, it is in the proper condition. Fresh manure is never advisable. Rather than use such a fertilizer I would depend on slops and soap-suds from washing day to furnish nutriment for my plants. If in the city, stable manure is not easily obtainable, and bone-meal or other commercial fertilizers can be used. Instructions as to quantity and manner of application will accompany each kind, so that no mistake need be made in their use.

Don't be afraid of expending too much work on your flower-beds. You cannot have them too fine or mellow. Much of your success depends on the condition of the soil at the time of sowing seed; therefore dig it over, and stir it, and pulverize it, until it is free from all lumps, and see that whatever fertilizer is used is thoroughly incorporated with it.

If you want a good garden, you will have to work in it a good deal after you have made your beds and sowed your seed. That is merely the beginning of the season's work.

Look out for weeds every day. Pull all you find to-day, and to-morrow you'll find more to pull. Eternal vigilance is the price of a good garden. No garden is a good one in which weeds are permitted to grow. There can be no compromise between weeds and flowers. If weeds are allowed to develop, the flowers will be crowded out early in the season; therefore it is of the greatest importance that they should never be allowed to get a foothold. Let war begin against them as soon as they put in an appearance, and let it be kept up until you have convinced them that they stand no chance of becoming established in your garden-beds.

Stir the soil about your plants at least twice a week, using a narrow-bladed hoe among the larger ones, and a weeder among the smaller kinds. Water at evening, if the season is a dry one. This is very important early in the existence of the plant, because then it has short roots which do not penetrate the soil far enough to get the benefit of moisture several inches below the surface. Later on they will be able to do this, but until they reach that stage of development they must be carefully watered if there is lack of rain.

In long seasons of drouth, and in localities where the soil is light and dries out rapidly, it will be necessary to supply water frequently and regularly. In giving water, do it at night, never in the morning. If given in the morning, the sun gets at it, and causes it to evaporate so rapidly that the plant receives but little benefit from the moisture before it is dissipated. It does not have time and the chance to get down to the roots of the plants where it *must* get in order to do any good. If applied at night evaporation does not take place to any great extent, and the soil drinks it in, and before morning the plants' roots have appropriated it.

Many persons cease to hoe their gardens in a dry season, thinking that the more open and porous the soil is the more rapidly it will dry out. So they let the beds become crusted over. Their inference is wrong. The plants in those beds that are frequently stirred will retain their freshness long after those in the crusted-over beds have become to turn yellow. Why? Because the light, open, porous soil is in just the condition to take in and make use of all the moisture that comes along—and there is more

in an ordinary dew-fall than many suppose—while the bed that is covered with a crust does not permit any moisture from such a source to penetrate it. Light, open soils absorb moisture as a sponge does. This is why the hoe should be used on the garden-bed in a dry season.

You will see the benefit of having the soil in this condition if you apply water. Every drop of it will be taken in just where and as soon as it is applied, but on the crusted-over bed a large amount will run away before the crust is soaked through, and no water can get down to the roots till this is done.

Therefore, stir the soil often and thoroughly in a dry season.

Save the suds from washing day and the slop basin and empty them on your flower-beds. They are too valuable to throw away.

One of the essentials of a good garden is—good seed. You should always aim to get the best that is to be had. Never buy the cheap stuff which is freely offered. It is always sure to prove dear in the end. Most of it is old seed, bought at a low price, and it cannot be depended on. Buy only of those dealers who have a reputation for honesty and fair dealing. They handle only such seed as they know will prove satisfactory.

I would advise sowing seeds of most plants in pots or boxes out of doors, rather than in the bed where you intend them to grow, because you have them under better control when young when sown in this way. If sown in the beds, fine seeds often fail to germinate because they are covered too deeply. Weeds are sure to appear as soon as you give them a chance to start, and if you sow flower-seeds in the beds, it is often difficult and sometimes impossible to tell "which is which" at first, and by the time you are able to distinguish weeds from flowers, the former have got the start of the latter. If seed is sown in boxes, this is not likely to happen. In transplanting seedlings from boxes, there is no waste of plants. You use enough to fill your beds, and no more, and what you have left can be given to your friends, or to those who cannot afford to buy seed. If flower lovers would start their plants in boxes of fine, light soil, and care for them properly, I am sure there would be less complaint about worthless seed. When I see how many persons sow their seed in the garden-bed, I do not wonder that many kinds fail to grow. They are scattered over a rough surface, raked in in such a manner as to cover some two or three inches deep with soil, and others not at all, and then left to be dried out by hot sunshine, or soaked to death by heavy, cold rains. By starting your seed in boxes all this can be avoided. I would not sow very early in the season in boxes out of doors, because nothing is gained by it. We are not attempting to get early plants by this method, simply to start plants in such a manner that they can get better attention during the early stage of growth than they would be likely to receive if sowed directly in the beds. In short, as I have already remarked, by sowing them in boxes, we have them under better control than when sowed in the bed, and that is quite important. April is quite early enough to start hardy annuals into growth. If you wait until that time your seedlings can be kept out of doors nearly all the time. Should a cold spell come along, the boxes can be covered with blankets, or old carpet, or newspapers. Grown without fire heat, and where they have a free circulation of air, they will be as strong and healthy in all ways as plants sown in the beds ever are.

If you want your plants to flower freely during the greater part of the season, it is very important that you keep them from ripening seed. If you allow them to form and develop seed, as they will attempt to do, you will get but few flowers after the first crop. All their energies will be bent to the one purpose of perfecting seed whereby to perpetuate themselves. But if you thwart them in this attempt by cutting off the seed-vessels as soon as seen, they will straightway set about making another effort to carry out their desire, and you will get another crop of flowers. By persistent effort on your part to prevent the formation of seed, you can keep most plants blooming until quite late in the season.

The Best Annuals.

I WOULD always advise amateur floriculturists to select old and tested varieties of annuals for the summer flower garden. In doing this, they are sure of getting something they can depend on. They run no risks. Others have given these plants repeated trials, and they have not been "found wanting." But if the amateur gets a craze for "novelties," he is quite sure to meet with disappointment. Some of the new plants are good, of course; some *very* good indeed, but the *majority* prove worthless after being given a thorough trial. To prove this, look over your old catalogues, and you will find that by far the greater share of the "novelties" introduced with such a verbal flourish of trumpets generally drop out of the list after a year or two, and are heard of no more. Why? Because they had nothing but their novelty to recommend them to the flower-loving public, and as soon as this was found out there was no further use for them. To become popular and remain so, a flower must have real merit. To indulge a desire for novelties, one must often put as much money into one or two kinds, as the plants with which a large garden is filled would cost him, because these new plants are always sold at fancy prices. It is always wise to invest this money in something you know to be good. If the new plants are really meritorious, you will find it out later on, and then you can buy them. But let those who have plenty of money to experiment with ascertain the facts relative to their merits or demerits.

Because the test of many years has proved how meritorious the standard flowers of the catalogues are, I feel safe in advising amateur florists to confine their selections to that list. They can be sure of having good flowers from them if they give them a reasonable amount of care, and without that care no flower will be satisfactory. Most of them are kinds that require but little attention after they have got well started. Given a good, mellow soil to grow in, freedom from weeds, and water, if the season should prove to be a dry one, they will bloom profusely; and if kept from perfecting seed, most varieties will continue to bloom throughout the greater part of the season.

Sweet Peas.

Of these most beautiful flowers you will want a variety. Some of the newer sorts are simply exquisite, with their charming combinations of dainty and delicate colors. Pink and white, pink and cream, pale yellow and pure white, scarlet and white, blue and white, mauve and lilac—there seems no end to the list of desirable varieties. The seed should be sown as soon as possible in spring. Sow in trenches at least four inches deep. If sowed late in the season or in shallow soil, they will be pretty sure to fail. They must get an early start, and their roots must reach down below the upper soil, where moisture and a certain degree of coolness is to be found at all times. This is one of the best flowers we have to cut from. Be sure to have a row of them.

Nasturtiums.

These are excellent for bedding, also for cutting. Do not give them a very rich soil, as that induces a rank growth of vine, and gives but few flowers. The Nasturtium comes in exceedingly rich colors, orange and scarlet predominating. Some varieties are a pure yellow, marked with maroon, others a soft cream with darker veins. Plant by themselves.

Petunias.

This flower is of the easiest possible culture. It comes in various shades of violet, purple, red, mauve and pink, and in pure white, and white striped and blotched or veined with other colors. We have very few flowers that make a braver show of color, or that bloom more profusely or constantly. By cutting back the tops from time to time, new shoots will be sent up that will bear flowers quite as freely as the first ones. Some of the latest varieties, with fringed petals, are very fine. By all means keep this plant in a bed by itself, as it does not combine well with anything else.

Calliopsis.

This annual is one of the best flowers we have in yellow. It is very bright and rich in color, ranging from a rich golden yellow to a deep orange, and its central markings of dark brown or maroon are exceedingly fine. It is a profuse bloomer and excellent for cutting. This is one of our best flowers for filling the center of a bed from which a dazzling show of color is desired. Unlike most other annuals, this combines well with other flowers of harmonizing colors, provided it is massed in the center and the others are planted about it as a border.

Ten Week Stock.

This flower is a late bloomer, and, on that account, very desirable. It is also a very beautiful flower and very sweet. It blooms profusely up to the coming of snow, and, if potted carefully and cut back pretty well at the time of potting, can be made a good winter bloomer. It comes in various shades of red and purple and pure white. About half the young plants will produce single flowers. These should be pulled up as soon as the character of the flowers is seen. This is the Gillyflower of our grandmothers. It is very fine for cutting.

Balsams.

Charming summer bloomers of many colors and shades. The double varieties are as large as a Camellia, which they resemble so much in form that one strain is called Camellia-flowered. In order to get the finest effects from them, the leaves must be clipped off or the flowers will be hidden. The blossoms are set thickly together all along the main stalks and the branches.

Asters.

This is our very best fall flower. It comes into bloom late in August and continues until frost.

There are several distinct varieties, all of which are very fine. Some are tall growers, others dwarf. Their colors are red, blue, pink, purple and pure white, and many sorts combine these colors in a most charming manner. In form they closely resemble the popular Chrysanthemum, for which some of the white varieties are sold in fall. No garden should be without this flower. Because of its late-blooming character, it should be given a place at one side, as it is not ornamental during the summer.

Phlox.

This flower is a favorite because it blooms with such wonderful profusion all through the season if prevented from forming seed, and because of its rich and varied coloring. The pink, and rose, and pure white sorts are best. It is of the easiest culture. Fine for bed where a great show of color is wanted.

Morning Glories.

The best tall flowering climber we have. Excellent for covering verandas, porches and screens. It often reaches to the top of the second story windows if given stout strings to climb by. Its colors are blue, purple, pink and white, exceedingly rich and delicate. An old favorite.

Poppies.

Old, but none the worse for that. Very showy and easily grown. Some of the lately introduced varieties, like the Shirley strain, are intensely bright in color, and give a grand show if planted in masses.

Nemophila.

Very dainty, delicate flowers, of soft, light colors. Useful for cutting.

Portulacca.

The best plant I know of for a very dry, sunny location. It flourishes under conditions that would be death to most plants. Its flowers are of many rich colors, some single, some double. All pretty, and produced in the greatest profusion. It is a low grower, and therefore fine for beds near the path, or under the windows where one can look down upon them.

Amaranthus.

This flower is not very desirable on account of its individual beauty, but for massing, or planting where it can show its mass of color strikingly, it is very effective. The foliage is red and green, the flowers in long, drooping racemes of dark red. Exceedingly showy for large beds, especially if bordered with Golden Feather Pyrethrum of some of the orange Nasturtiums.

Ageratum.

A neat little bushy plant, bearing clusters of feathery blue and white flowers, which are very fine for cutting. Very delicate in tint. Fine for boquet work.

Antirrhinum.

The well-known old Snapdragon. Very brilliant in color. Scarlet and yellow, orange and scarlet with white throat, crimson and white, yellow and blotched.

Allyssum

A good edging plant, bearing small, pure, white flowers in clusters. Very fragrant. Fine for cutting. Effective when grown in masses, where a broad show of white is desirable.

Candytuft.

A profuse bloomer, fine for massing or edging. White and carmine. Of the easiest culture.

Celosia.

A peculiar flower, that never fails to attract attention. Better known as Cockscomb, because of the resemblance of its ruffle spikes of flowers to the comb of Chanticleer. Rich in colors of red and crimson and yellow. Very desirable, not only because of its rich coloring, but because of its striking form.

Larkspur.

The annual Larkspurs are all charming flowers. Double and single.

Eschscholtzia.

One of the most showy of all plants. Colors, orange, yellow and creamy white. Better known as California Poppy. Great bloomers.

Gaillardias.

Very free blooming flowers, of red and yellow, red and orange, red and white, and various other combinations of colors.

Mirabilis.

The old Four-o'clock. Fine for a hedge or screen. White, violet and crimson; some varieties blotched and striped in a most peculiar manner. Very free bloomer.

Marigold.

One of the good old flowers which ought not to be overlooked. The French varieties, with their rich yellows and velvety browns, are very fine. Fine for massing.

Mignonette.

Not showy, but *so* sweet! Every garden should have plenty of it to cut from.

Scabiosa.

Very richly colored dark flowers, which are excellent for cutting, as they are borne on long, wiry stems. Good, when dried, for winter flowers.

Zinnia.

A strong-growing, branching plant, that is most effective when grown in the background, in beds, hedges, or as screens. Colors, scarlet, yellow, orange, red, purple, salmon and pure white. Mostly very double and shaped like the Dahlia.

I shall not extend the list of desirable annuals, because it would be impossible to give space to the mention of all, and I have already named

enough to afford the most enthusiastic amateur a wide range of selection. All named are good. There are many not in the list that are worthy a place in any garden, and the catalogues will tell all about them. But those named here are kinds best adapted to the amateur, because they are not delicate, and do not need coaxing in order to get them to bloom.

In selecting annuals, do not make the mistake —to which, I think, I have alluded elsewhere— of getting more than you can do justice to. Have fewer sorts, and grow these to perfection, rather than undertake to grow a great many kinds, and find that you cannot give them the care they ought to have. Quality rather than quantity should be the motto of the amateur flower grower, if he would attain to the highest success and satisfaction.

Carpet Bedding.

CARPET BEDDING—in other words, such an arrangement of plants of various colors as to work out patterns and designs similar to or suggestive of those seen in carpets—is very popular, and most yards or gardens have a specimen or two of this kind of gardening each summer, and on large lawns we find many of them, some large beds often containing several thousand plants. The great city parks contain most elaborate designs, many, if not most of them, being more striking than beautiful. The only "designs" I have ever seen that I admired were those in which geometrical patterns were worked out. Portraits, animals and the like attract attention, but there is nothing artistic about them; indeed, they are burlesques on art, and one soon becomes tired of them, while a less pretentious bed in which angles and circles of contrasting colors interlace with each other, affords the eye a bit of brightness that pleases, at least if it does not educate, the taste to a love for and appreciation of something more truly artistic.

Flowering plants should never be used in working out these designs, for several reasons:

Firstly.—Because a flower was made to be admired for its own beauty—that beauty which consists in form and color and habit of growth. If you use it for mere color-effect, as you must when you work it into a carpet bed, you degrade it, because you do not grow it for individual beauty; rather, for the mass of color, which can be secured by planting it so close together that all individuality is lost sight of in general effect. Flowers were not made for such purposes, I believe, and the true lover of them will not care to use them in such a manner as to destroy their principal charm.

Secondly.—No flowering plants with which I have had any experience bloom so profusely throughout the season that they can be relied on to give good results when used in combination with plants having richly-colored foliage. In order to secure a solid effect of color, something having more "body" than that afforded by most flowering plants must be used. We often say that a plant is "covered with flowers," but the truth is that it is never really covered in the literal sense of the word. There may be a great many blossoms, but they are seldom so plentiful as to give the effect of a solid mass of color. Instead, they give us blotches of color on a green ground, which is not what we require in order to produce most satisfactory results. Such results can only be secured by using plants whose foliage furnishes a mass of color among which no other colors are seen, unless it happens to be variegated, in which case the effect is quite different from that given by flowers scattered over a plant.

Thirdly.—There is a lack of complete harmony between "foliage" plants and flowering plants. The former can be clipped and kept even as to height without interfering with general effect, while flowering plants throw up stalks of unequal height and of spreading habit, thus breaking up regularity and sharpness of outline, on which much of the success you aim at depends. You cannot clip these plants back as you can the others, because in doing that you would cut off the flowers, thus destroying quantities of that color on which you depend for the effect sought. The only way in which you can secure this color-effect from them is by letting them grow, and when this is done, as I have said, the effect is rough and uneven. It is not so with plants having foliage whose color enables you to work out a design. Cut off their tops, or shorten their side branches, and leaves still remain to give sufficient color, and other leaves will be produced along the branches, thus making it possible to keep up a show of color throughout the entire season, without sacrificing regularity and symmetry.

The only way in which I would combine flowering plants and plants having bright foliage, is by using the latter as edging or border for a bed. In doing this great care should be taken in the selection of varieties, or inharmonious effects will result. Imagine a bed of pink Phlox surrounded with crimson Coleus! Border such a bed with Madame Salleroi Geraniums, with their pale green and pure white foliage, and the combination would be most charming.

The plants most used for carpet bedding are Coleus, Achyranthes, Alternantheras, Feverfew, or Pyrethrum, Centaurea and Geraniums.

In Coleus we get several shades of red, ranging from a light tint to one so dark that it is almost maroon. Verschafelti, an old sort, is still one of the best among the red-leaved class. It retains its color well throughout the hottest season, bears frequent and severe clippings well, and furnishes a mass of solid color which forms an excellent background for the relief or display of lighter colors.

Yellowbird, a variety having foliage of a bright yellow, furnishes perhaps the best mass of this color of any variety we have. It compares very favorably in all ways with Verschafelti, with which it can be most effectively used, the contrast and harmony between the two being very fine. There are other varieties having yellow foliage, but the one named is as good as any I have any knowledge of.

The varieties of Coleus having foliage variegated with red, white and yellow are pretty, but because of the broken effect of the many colors in the same leaf they are not as useful as the plain-leaved sorts in bringing out a pattern.

Achyranthes and Alternantheras are mostly in red and yellow, with combinations of pink and white. Some of the crimson sorts are very fine. They do not produce such a solid, clear color-effect as the Coleus does, because of their blended colors, but they are favorites because they form a dense, low mass of foliage which has, at a little distance, a velvety look, and their mixtures of hues and tints gives them a "changeable" effect which is quite pleasing, and imitates to some degree the ground of a Turkish carpet, in which several colors are used together without any attempt to work out a pattern by them.

The Golden Feverfew, or Pyrethrum—"Gold-

en Feather"—as catalogued by some dealers, is a charming plant, where masses of delicate yellow are required, its feathery foliage producing a light and graceful effect. It cannot be clipped closely as the other plants can without destroying considerable beauty, which consists almost as much in the delicacy of its foliage as in its peculiarity of color.

The Centaurea has foliage of a soft gray, and this neutral color makes it very valuable for use as a background to richer and brighter colors. It is of nearly the same habit of growth as the Feverfew described above, and must not be too closely clipped.

The Madame Salleroi Geranium is a favorite, because it rquires no clipping, no training of any kind. When left to itself, it forms a rounded mass of foliage, thick to the base of the plant. It seldom grows to be more than a foot in height and about the same across, and can be used to form lines or masses of solid foliage of most symmetrical outline, because of its close, compact habit of growth. Its leaves are a pale green, edged and flaked with pure white. It is extremely effective when used in combination with the darker varieties of Coleus.

Marshal McMahon Geranium is a good bedder, having greenish-yellow leaves with a dark-brown zone. This is suitable for beds in which tall-growing plants are used, as it is a sturdy grower and does not branch much when kept low—that is, not sufficiently to form thick, low plants well set with foliage. The Mountain of Snow variety can be used with it quite effectively, as it is of about the same size and habit. Its foliage is green and white.

In selecting designs for carpet-bedding on a small lawn, or in a yard of ordinary size, I would advise choosing those in which the "pattern" to be brought out is quite distinct and simple. Those having elaborate or intricate patterns are better left to the professional gardner, who not only understands the habit of the plants used better than the amateur does, and consequently knows what care is required by them, but will be more likely to give them the necessary attention, upon which the greater share of success in this line of gardening depends. It requires a great deal of work and daily attention to make an intricate pattern successful; but a simple design is less exacting, consequently better suited to the amateur, who will not be likely to devote a large share of his time to taking care of his garden.

When you have your beds planted, the work is only half done. After the plants become established and growth begins, you must go over them frequently with the pruning-shears and trim them into symmetrical shape, and they must be kept so. If allowed to grow unclipped and uncared for, they soon become straggling and awkward in shape, and the sharpness of outline on which the clearness of the pattern depends is lost. Each color and variety must be kept within proper limits. Plants in one row must never be allowed to send into or over those in another row. The plants must be given to understand that "thus far shalt thou go and no farther." Clipping off all branches showing a tendency to "reach up" must be attended to quite as regularly as those inclined to "spread out."

I wish to emphasize this advice, because most amateurs are prone to neglect this part of the work, and the consequence is that their beds, as a general thing, have a hazy and indistinct appearance as to design. If properly cared for, each color will be as clearly defined as contrasting colors in a carpet pattern, and the surface of the bed will be a thick, close mass of foliage of the same height, rounding down on the edges to the sward in which it is set.

As a general thing, beds in which these plants are used should not be given much manure, as that encourages too rank a growth.

A slow, steady development is what is wanted. In a soil of moderate richness, the joints of the plants will not be far apart, therefore there will be many leaves, and these will not be coarse or overgrown. In a rich soil you will have long-jointed plants, few leaves, and these large, giving a much less satisfactory effect than you get with slower growth, such as soil of only moderate richness gives you.

Perhaps some reader would be glad to have me suggest some combinations of the plants named for small beds. I take pleasure in doing so:

A star is always effective, and it is easily made. One containing but two colors has the merit of great simplicity, and is quite sure to please. Fill the center with crimson Coleus, edging the design with yellow Coleus, or Golden Feverfew. Should you care to use three colors, run a row of the gray Centaurea between the two colors of Coleus, or use this in the center with the two Coleuses to fill out the design. If your star is a large one, a group of Cannas will be very pretty in the center; or, if you want something still more tropical in appearance, have a Ricinus, or Castor Oil Bean, with its great palmate leaves three feet across, forming a most attractive object as a center-piece.

A Maltese cross is very pretty with a center of Achyranthes or Alternantheras, edged with red or yellow Coleus. Or the center can be Madame Salleroi Geraniums, with an edging of red Coleus.

Circular beds are very easy to make, and look well in the curve of a path. In small beds, have but two or three rows of plants. If your bed is a large one, have a row of small circles around the outside, overlapping each other. A fine effect can be secured by planting the overlapping circles in red and yellow Coleuses, the circles of each color alternating. Fill in between with Achyranthes or Alternantheras, and edge the bed with Centaurea or Pyrethrum. This will make a very pretty bed if well taken care of. If raised in the center the effect will be finer than if flat. If situated at a prominent point on the lawn, a large group of Cannas or Ricinus as a center will add greatly to its effect.

Do not adhere to old designs. Originate some, and thus avoid having your garden a duplicate of your neighbor's. But do not make the mistake of selecting a too elaborate design, or of having too many of them. A small yard cannot stand many beds of this kind. One is quite enough for the ordinary yard.

Summer Blooming Bulbs, and Plants for Tropical Effects.

THE very best summer-blooming bulb we have is the Gladiolus.

Nothing can compare with it favorably in rich and varied coloring. It ranges through all shades of scarlet, crimson, rose, violet, lilac and carmine, to white and pale, delicate yellow, and nearly all varieties have such combinations of all these colors, in blotches, flakings and stripes, that words fail one in attempting to describe them. The only term that suits this flower is—magnificent. It has the delicacy of the Lily, as to texture, and the brilliant tints of all our most vivid flowers in its wide range of colors.

No flower is of easier cultivation. The soil should be light, rich, and mellow. Plant the bulbs six inches deep. Do this in May, when the ground has become warm, but not before.

The finest effects are produced by planting in groups, or masses. I would advise planting never less than half a dozen bulbs together. Do this, and you get a large enough number of flower-stalks to give a massive effect, which is not the case when bulbs are planted singly.

If planted in rows, put the bulbs close together, and string wires along the rows, from stakes set at each end, to tie the flower-stalks to. If this is not done, they are likely to be blown over or broken down by sudden winds.

In fall, after frost has killed the tops, dig the bulbs, and expose to the sunshine for three or four days, covering at night. Then cut the stalks to within six inches of the bulb, and put them away in a cool room until the stalk is ready to separate from the root. Then put the roots in dry sawdust, or buckwheat hulls, and store in a room safe from frost, but not warm enough to induce growth.

Very fine collections of the Gladiolus can be bought for small sums of money, of all dealers. In no way can more satisfaction be gained for money expended on the garden.

Tuberose.

This bulb would be cultivated extensively by flower-lovers everywhere, if it could be depended on. But there is so much failure with it that not many attempt to grow it. It must be started early, given a light, rich, warm soil when put out in the garden, and protected from the slightest frost. Care must be taken to get flowering bulbs. At the north a bulb does not flower a second time. Some unscrupulous dealers will send out old bulbs, knowing that they will not bloom. Buy your bulbs of reliable dealers only.

Dahlias.

This plant is not of bulbous nature, but reference to it belongs here, as it is a summer bloomer, like the Gladiolus.

It is not a satisfactory plant at the north, unless started into growth early in the season, because it is a native of the south, where the season is long and warm, and generally moist. To succeed with it at the north, we must start it early, give it a rich soil, when planted out, and large quantities of water. If this is done, we can bring it into bloom in July and August, thus getting flowers before the time of frost. If the tubers are not started to growing before being planted out, the plants will generally be full of buds by the time frost comes, and a slight frost will kill them.

The double varieties are very showy, but I do not like them as well as the semi-double and single sorts. The range of colors is very wide, and richer colors are found in no flower.

Lilies.

Perhaps these flowers ought to have been treated of in another chapter, because they are hardy plants; but they are summer bloomers, and I speak of them here because they come into bloom along with the Dahlia and the Gladiolus. They should be planted in fall, when Hyacinths and Tulips are, and in soil prepared exactly as advised for those bulbs.

Every garden should have its bed of Lilies; or, if one does not care to have them in beds, they can be planted in groups, among shrubbery, or in the border. They are beautiful anywhere. After becoming well established, they require very little care. Once a year, dig some old and well-rotted manure in about them, taking care to not disturb the roots. Throw some leaves or litter over them in fall.

The following are good kinds for the amateur to begin with:

Speciosum *rubrum*, white, spotted with red.

Speciosum *album*, white, slightly tinged with rose.

Auratum, the Gold-Banded Lily. A superb sort, white, spotted with chocolate-crimson, with a bright yellow band down the center of each petal. One of the best.

Batemanniæ, apricot yellow.

Tigrinum, the well-known old Tiger Lily—orange, spotted with black.

Candidum—pure white, and exquisitely beautiful. Flowers large, and trumpet-shaped. Very fine, but not entirely hardy at the extreme north. Where it can be depended on, it is one of the most desirable varieties.

Caladium.

This plant has enormous leaves, and is very effective when grouped in the center of a large bed. It must be given a rich soil and plenty of water.

Musa.

Musa *ensete*, or Banana, is a very striking plant when well grown. Like the Canna and Cala-

dium, it must be given a deep, strong soil. The leaves are frequently four and five feet long, and give a most striking appearance to any bed in which the plants are grown. This plant combines well with the Canna.

Cannas.

These plants are becoming more popular every year. They were formerly grown for their foliage, which is large and luxuriant, consequently well adapted for beds where tropical effects are desired. During the past few years, florists have produced varieties having flowers almost as large and fine as a Gladiolus blossom, and the Canna now has a great future before it as a flowering plant. In order to secure the best results, give the roots a very deep, rich soil, and plant close together. Effective when planted in beds by itself, or in combination with other plants having tropical foliage.

Herbaceous Plants.

EVERY year I am more and more impressed with the value of hardy plants for the amateur florist. They are good for years, when properly planted and thoroughly established, and given such care as they require, which is slight in comparison with that demanded by nearly all other classes of plants grown by the amateur florist.

The term "proper care" is one in which there are several degrees.

In the lower degree it means simply keeping weeds from encroaching on the plants, and that is about all the care such plants as those under consideration in this chapter will be likely to receive from many amateurs. And it is a fact that most varieties will do quite well with this limited attention, and that is something that cannot be said of annuals.

The next degree adds to keeping down the weeds, the regular and liberal fertilization of the soil, which is a matter of prime importance in developing the plants in a manner calculated to satisfy the enthusiastic florist who is not content with simply getting flowers. What he wants is *fine* flowers. Quality is more to him than quantity.

In the third degree is included many little items of attention which I need not mention here, but which the careful, conscientious cultivator will come to fully understand, as his experience enlarges, if he studies his plants closely. There are many things about the successful culture of plants of all kinds that can much better be learned by experience and observation than by the study of books. Little items, which seem trivial and unimportant when read about, but which are the opposite. The most successful growers of flowers are those who give attention to the *minutiæ* of the occupation. They have a knowledge that is not "put down in the books"—a knowledge that must be acquired by personal experience.

But all this may be considered a digression. What I set out to say is this:

For the lover of flowers who has not a great deal of time to devote to the cultivation of plants, herbaceous and perennial plants—those more commonly called "border" plants—are the kinds to be selected, because of the ease with which they are cared for, and the generous returns they make for the labor expended on them.

It requires less care to keep a comparatively large collection of them free from weeds than it takes to clear even a small bed of annuals of weeds. The hoe can be used among them, but it cannot among annuals, during the early stages of their growth, and work with the hoe will be found far pleasanter and easier than hand-weeding is. I would not be understood as advising the neglect of annuals, but as advising the cultivation of border plants, in preference, by those whose time is limited. I *do* advise growing more hardy border plants, and fewer annuals, however. I would have the best of each.

Plants of this class, as a general thing, like a deep, rich, mellow soil, in which their roots can spread out, and reach down easily. As many varieties do not bloom during the early part of the season, I would give them a place somewhat in the background. It is a good plan to have a row of them along the fence separating lots. If those owning land on both sides of the fence put their plants there, the fence will be hidden by them, and the effect is very pleasing. Some kinds can be planted among shrubbery very effectively. But do not plant any in beds immediately in front of the house, or very close to it. Reserve such places for annuals and bedding-plants from which you will be likely to get flowers during the greater part of the season.

One of our very best perennial plants is the Phlox. It has long been used for producing a strong show of color, its great cluster of thickly massed flowers making it especially valuable for this purpose. But lately, varieties have been produced which are wonderfully beautiful when the individual flower is taken into consideration. Some of the new varieties have flowers as large as those of the best types of the Geranium, with hundreds of them in a single truss. These trusses are often a foot and a half in length and a foot across. When the great size of the truss is taken into account, the number of them on each plant, and the length of time the plant is in bloom, the good qualities of this plant will be more fully realized by those who have seen it but have not grown it.

I consider it the best hardy summer-flowering plant we have for general culture. Its care is of the simplest. It likes a rich soil. It likes to have the grass and weeds kept from choking it and robbing it of nutriment. Beyond this it makes no demands. Year by year its roots increase in strength and the clump grows larger and larger until you have a plant three or four feet across, which seems, at a little distance, to be one solid mass of flowers of all shades of crimson, violet, rose, red, and purple, to pure white. It is so entirely hardy that I have never heard of its being winter-killed under any circumstances. It can be grown from seed, but the best method of propagating it is by division of the roots. A large percentage of seedlings will give flowers quite unlike those of the parent plants, but plants obtained by division of the roots will give precisely the same flowers as those borne on the old plants. If you want the choicest sorts you can only be sure of getting them in this way.

The following kinds are among the best varieties of this flower:

Lothair, salmon rose, very soft, bright, and beautiful.

Washington, white, with rosy-purple center.

Cross of Honor, light rose, striped down each petal with white. Very fine.

Sir E. Landseer, very rich, dark crimson.

Miss Robertson, pure white.

A fine effect is secured by planting in clumps. If the bright-colored varieties are given a place

PHLOX.

in the center, with white varieties about the outside of the group, contrast is secured which heightens the general effect.

Next to the Phlox, I would place the Hollyhock. I would give it first place on the list were it as hardy and robust as the Phlox, but it is not, therefore it is not as well adapted to general cultivation. It generally does well for one season. The second season the plants seem weak, and the third they are worthless. This applies to the new and double varieties, which seem to have gained their beauty at the expense of their vitality. The old, single sorts were very robust, and gave good crops of flowers year after year. The newer varieties are wonderful improvements on the old. Their flowers are as double as Roses, ranging through all shades of red, scarlet, purple, crimson, rose, yellow and maroon, that is so deep and intense in tone as to seem black, to pure white. Nothing is more effective for bold and prominent locations than large groups of the Hollyhock.

I consider it a mistake to give this plant a very rich soil. Such a soil may give you larger and finer flowers than a moderately fertile one; but it is my experience that those grown in a soil highly manured do not continue in flower for so long a time, and their blossoms do not last as long, as those not so highly stimulated. In other words, that plants not forced to a rapid development have more strength and "staying" qualities than those under high cultivation.

I would advise sowing seed each year, so that a supply of strong, young plants can be always on hand. Seed should be sown in June or July. The young plants should be given a covering of leaves in fall. The next spring plant them where they are to bloom.

The Aquilegias, of which there are several varieties, are among our best border plants. I prefer the pure, pale yellows, the rich, delicate blues, and the white varieties. By all means have a bed, or several clumps of them. There are double and single kinds, both very desirable.

AQUILEGIA.

Coreopsis *lanceolata* is one of the new plants sure to win its way to popular favor. It is very hardy. It sends up many slender stalks, crowned with blossoms of the richest yellow. It is not a large grower, therefore should be given a place in the front row. For cutting, it is quite as desirable as the annual varieties, which it closely resembles in form. It lacks the rich brown markings of the annual kind, and does not bloom as freely, but it continues to blossom until frost comes.

The Dicentra, with its beautiful fern-like foliage, and long, gracefully arching sprays of drooping pink and white flowers, deserves a place in every collection. This flower is popularly known as "Bleeding Heart," because of its peculiar shape.

The pink and white herbaceous Spireas are extremely beautiful, and no garden is complete without them. Their panicles of bloom have such an airy, graceful effect, lifted, as they are, on long, slender stalks, well above the foliage, that they seem dainty plumes waving in the wind. For back rows in the border they are among our best plants. They transplant easily and safely, grow rapidly, require but little attention, bloom freely,

and are hardy everywhere. For cutting, for use in tall vases, we have no finer flowers in the entire section of herbaceous plants.

Every garden should have its clumps of Peonies. Fine plants of this favorite old flower are magnificent when in full bloom. Clumps are often seen four and five feet across, bearing hundreds of flowers. This is one of the plants that increase in beauty with age. Give them a rather heavy clay soil, and disturb the roots as little as possible. Each fall spread a liberal amount of well-rotted cow-manure about the

PEONIES.

plants, and in spring dig it into the soil about them.

The perennial Larkspur is wonderfully effective when grown in large clumps or masses. It is of vigorous habit, and tall and stately in character. The intense depth of color which characterizes the blue varieties makes it one of our most decorative plants. This is a back-row plant, where it can be made to do excellent service as a foil and contrast to pale, sulphur-yellow Hollyhocks.

Achilleas are not grown as extensively as they deserve to be. They have delicate and beautiful foliage, and charming white and pink flowers. For cutting, they are very valuable.

The "coming" flower in the hardy class is the Iris, in the new Persian and German varieties. Such a wonderful range of colors, rich and delicate, one can find nowhere else. The blues and yellows, the purples and maroons, the mauves and silvery grays, are simply exquisite. They have all the richness and variety of color which renders the Orchid so popular. Their magnificent colors, and the harmonious and striking combinations of them in the same flower, the freedom with which they are produced through a long season, and their ease of cultivation, make them favorites everywhere. They do best in a moist soil, but will grow very well anywhere.

IRIS.

The Myosotis, or Forget-me-not, is a charm-

ing little plant for the front row. It likes a moist, shady place. Its flowers are star-shaped, of a delicate blue with yellow eye. It blooms during the greater part of the season. Excellent for cutting, to use in small bouquets.

The Sweet William of to-day is a great improvement on the Sweet William of twenty-five years ago. The newer sorts are magnificent in intensely rich shades of crimson, scarlet, and maroon, beautifully marked with pure white. A low grower.

Digitalis, or Foxglove, is a tall-growing plant, with long spikes of drooping flowers. Suitable for back rows.

The Canterbury Bell, or Campanula, blue and white, is a good border plant. The single varieties are best.

No garden should be without its Pinks. The Chinese varieties bloom the first year. The old-fashioned "Grass Pinks" are as sweet and rich in color as the greenhouse Carnation, and are favorites for cutting. There are several classes in the Pink family, all deserving attention by the cultivator of lovely flowers.

Platycodon is a newcomer, but it has already won friends. It has bell-shaped flowers of blue and white, produced throughout the greater part of the season.

Helianthus *multiflorus* is a great acquisition to our list of hardy plants for the central States and the South. North of Ohio it often fails to survive the winter, if left in the ground. It is a member of the Sunflower family. Its flowers, which are produced in great profusion during the latter part of the season, are very double, and of a dark, rich yellow — a color greatly needed to give tone and brightness to the garden where few yellow flowers are seen. This flower is excellent for cutting.

DIGITALIS.

The old Rocket still holds its own, and it is, indeed, one of our best plants for massing. The two varieties most grown are purple and white. This is most effective when grown in clumps.

The Oriental Poppy is extremely showy. The flowers are of great size, borne on long stalks, and of the most intense scarlet, with a black blotch at the base of each petal. This flower produces a most striking effect when planted in masses, where its vivid color can have a dark background to display itself against.

For edging beds of hardy plants, the Daisy is the best plant we have. It must be borne in mind that the Daisy spoken of (Bellis of many catalogues) is not the Daisy of the meadow. It is a very low-growing plant, bearing flowers of pink and white about the size of a silver quarter, very double, and altogether charming.

I have named above only the best and most popular plants of the herbaceous or perennial class. There are many other kinds well deserving a place in any garden, but lack of space makes it impossible to speak of them all. Look over your catalogues, if you desire to add to your collection. You will find all that are worth growing described there.

The proper time to transplant border plants is in spring. If this is done then, the plants become well established during the season, and go into winter quarters in a strong, healthy condition. If it is not done until fall, they do not have sufficient time to fully establish themselves before cold weather comes, and they are generally injured by the long, severe winter.

Shrubs.

Every garden or yard should have at least a few shrubs. There is a dignity and idea of permanence about them that other plants do not possess. They give a charm to the home that is only second to that afforded by a good tree, and because they can be grown in so short a time, they recommend themselves to many persons who do not feel willing to wait for a tree to develop. But I would not advise any one who plants shrubs to neglect to plant trees. Plant both, and enjoy the shrub while the tree is growing.

In planting shrubs, it is necessary to give considerable attention to the soil. You cannot grow good shrubs in a poor soil. You ought not to expect to do so, but many persons seem to think a shrub ought to grow if given a place in the ground, and they wonder why it is that *their* shrubs do so poorly, while those of their neighbors flourish. I think a great many persons get the idea that a shrub will do well under all conditions from seeing bushes growing rankly in pastures and the roadside. They forget that the native shrub has a robustness and hardiness which shrubs from foreign countries do not have. They also overlook the fact that even our native shrubs improve so greatly under cultivation that they seem quite different in all ways from the plant which grows in fence-corner or highway. It pays to give anything in the garden the best of care, and most things that are grown there will not prove satisfactory without such care. Let the amateur gardener remember this, and, unless he is willing to do what ought to be done, let him stop before he begins, and give over to others who are willing, the work he would be pretty sure to make a failure of.

"The soil best adapted to all classes of plant-life," says John Berry, "is one of a rich, friable nature, such as we make after a few years' cultivation of an old pasture. All soils should be provided with proper drainage. Heavy, clayey soils are improved vastly by taking the extra amount of water out of them, and such soils should have added to them coarse sand or fine gravel, and old garden soil, leaf-mold, or thoroughly rotted manure in liberal quantities, with a free application of muscle to mix and incorporate thoroughly the various elements which go to the making of such a soil as every yard should have, in which shrubs are to be set from which the highest and best results are expected."

Planting is generally done in a slipshod fashion. A hole is dug large enough to contain the roots of the plant, they are dropped into it, the earth is crowded in about them and stamped down, and the operation is over.

This is all wrong.

The first thing to do, after making the soil rich and mellow, is to dig a hole large enough to contain all the roots of the little shrub when they are spread out in a natural manner. Never crowd them together. Never force them to take on unnatural shapes. Aim to imitate the conditions from which they were taken. Have some very fine and mellow soil to work in between the roots, and have, also, a pail of water to pour over this soil and settle it firmly before the top soil is put on. Make an effort to save all the young and fibrous roots possible, for these are generally feeders whose work is of the greatest importance, and they should be injured as little as possible.

Set the plant a little lower than it previously grew, and be very sure to have the soil firm about it, so that the wind cannot move it back and forth and loosen it. It is a good plan to tramp the top soil down very solidly. It is necessary that the roots should remain firm in the soil until they have a chance to take hold of it.

The best time to plant shrubs is in spring, for then they are making growth, and in the best possible condition to take hold of the soil in their new quarters. In fall the plants are in a dormant condition, and must remain so until spring, and the exposure to the winter in a weakened condition such as must come to any transplanted shrub which has had no time to establish itself, often results in death the following season.

Never allow the roots of a shrub to be exposed to the effect of wind and sun. If they have to be moved any distance, cover your shrubs with a thick blanket, which should be kept moist. This is very important. More shrubs are lost by exposure of this kind than from any other cause. The young and tender roots are very susceptible to injury from exposure.

Before setting out shrubs, one should study up about them. He should understand their habit. He ought to know how large they grow to be, in order not to make the very common mistake of planting them so closely together that, after a few years, they crowd each other. Every shrub that grows to any size, unless grouped, should have sufficient space about it to admit of its development in such a manner as to display its individuality. It must be given plenty of elbow-room. Crowd a half dozen shrubs together in the space that one or two would fill, if left to spread naturally, and you spoil all of them. Because shrubs are small when planted, one gets an idea that a good many are required, but a careful study of shrubs of a similar sort in old gardens will cause one to look ahead and plant for the future. Do not expect to make much show with newly planted shrubs. You must give them time to develop before that can be expected of them.

Before closing these remarks it may be well to say, in this connection, a few words about pruning. Before applying the knife, study the habit of each kind, and prune in such a manner as to assist it to develop its natural and individual beauty, rather than to interfere with this, as you very surely will do if you prune without a knowledge of its habit of growth. No two shrubs are alike in their peculiarities, and these peculiarities should always be considered and retained, as far as possible, by judicious pruning.

The best time to prune is after the flowering season. This is done by shortening in the branches and cutting out the old and worthless wood, and all wood that does not seem necessary to the symmetry of the plant.

In pruning, aim to preserve a symmetrical form, without making it stiff and formal. If branches are shortened occasionally, to cause a thickening up of the plant, and the old wood is removed, the plant can be safely left to train itself, as a general thing. Sometimes it will seem inclined to be erratic, but not often. In case it does, cut back the straggling limbs, and oblige it to give up its vagaries.

While the following list of shrubs is not very extensive, it will be found to contain the very best varieties for general culture. And it is well for the amateur to confine himself to the old and tested sorts until he acquires experience enough to enable him to undertake the care and culture of kinds requiring more careful treatment. New varieties can be added from time to time, as old ones fail or prove worthless, as sometimes they will because of not being exactly adapted to the conditions under which they are grown.

Almond.

These shrubs are old favorites, generally perfectly hardy, but coming through the winter in better condition if laid down on the ground and covered with leaves or litter. They bloom very early in the season. The flowers are small, double, pink and white, and cluster along the slender stalks, giving them the appearance of wreaths of delicate flowers.

Berberis, or Berberry.

This is a very hardy shrub. The flowers are not so ornamental as the fruit, which is a dark red, borne very profusely, and remains on the bushes during winter if left alone by the birds. The purple-leaved variety is charming when used in connection with lighter colors.

Cornus, or Dogwood.

A native shrub, bearing white flowers.

HYDRANGEA.

Cydonia.

Better known as Japan Quince. A small shrub, of compact habit, bearing intensely rich scarlet flowers very early in the season. Its foliage is shining, and very ornamental. Excellent for low hedges.

Deutzia.

A variety of shrubs from Japan, which for hardihood, graceful habit, and freedom of flowering are unsurpassed. Their flowers are small, but borne in such clusters as to make them very conspicuous. *Crenata flore pleno* is a double variety, white and rose. *Crenata alba* is a single white kind. Pride of Rochester is a new variety, something after the habit of Crenata, but with larger flowers, and a week or two earlier.

Forsythia.

This is a very graceful shrub from Japan. Its flowers are bell-shaped and drooping, and appear very early in spring before the foliage is fully developed.

Lilac.

An old favorite, and really one of the best shrubs we have, as it is entirely hardy and beautiful, and delightfully sweet. There are several varieties. The Persian is perhaps the best of all for yards of ordinary size. The older sorts become small trees, if trained in that form. I like it best, however, as a shrub. This plant suckers very freely, and the sprouts must be cut off close to the ground frequently, or they soon form a thicket.

Daphne Cneoroum.

A charming, low shrub, with evergreen foliage and clusters of pink, fragrant flowers at the tips of the branches. Seldom seen, but one of the best hardy, small shrubs we have.

Hydrangea.

The variety sent out under the name of *Paniculata grandiflora* is very hardy, a great bloomer, and does not come into flower until late in the season. Single specimens are pleasing, but in order to get the best effect, several plants should be grouped together.

Weigelia.

This family of shrubs is not entirely hardy at the extreme north, but through the middle section they are perfectly reliable. Their flowers are rose and white, and very pretty.

Syringa.

No collection is complete without this shrub. It is a free bloomer, very fragrant, and a vigorous grower. Flowers white.

Prunus.

The variety called *Pissardii* is quite hardy. It has foliage which is almost crimson in spring, changing to a deep purple in fall. Planted where its rich color can be shown off against an evergreen, it is extremely effective.

MOSS ROSE.

Spirea.

These shrubs are hardy, bloom freely, and are satisfactory. Flowers white and rose.

I shall not continue this list of miscellaneous shrubs, as the catalogue will tell those who wish to know more about them all they care to learn.

Roses.

Of course every lover of flowers wants a collection of Roses. No garden would be a garden

in the best sense of the term if there were no Roses in it.

At the north, May is the best month in which to plant the Rose. I prefer dormant plants to those which have been grown indoors during the winter. I also prefer plants growing on their own roots. Many dealers graft their Roses, but quite frequently these grafts die off and shoots

METEOR.

are sent up from the roots on which the grafts were placed, and these fail to bloom. With Roses on their own roots, nothing of this kind can take place, as any shoots that may be sent up will be exactly like the original plant.

In preparing beds for their reception it is well to remember that Roses do not like a very moist soil. If the location is a wet one, it must be well drained before putting out your plants if you want to grow them well.

Roses luxuriate in a rich, deep soil, and produce flowers in the greatest profusion and perfection, both as regards size and color, if this essential requisite is given them. To secure the greatest degree of success the entire bed should be dug over to the depth of two feet at least, and a liberal supply of well-rotted cow-manure thoroughly mixed with the soil. Old chip manure is excellent. In case neither of these fertilizers is obtainable, bone-meal can be used. All the work should be done as early in the spring as possible, so that the soil may become settled before planting-time.

In planting, it is important to firm the soil about the roots well.

In choosing a location for the Rose-bed, select one fully exposed to a free circulation of air, and not very shady. Keep the ground clean and mellow from spring till the close of the season.

A rather heavy soil, in which there is some clay, will be found more to the wants of this plant than a lighter, more open soil.

The insects which infest the Rose may be kept down by using the kerosene emulsion spoken of in another place. Hellebore, either in the powder or as an infusion, is often effective, if used early in the season.

The hardy June Roses will not require much covering in winter, but they are better for having some protection. If it is not given them, quite frequently the ends of the branches will be killed. I would advise laying all varieties of Roses down on the ground, and covering with a few inches of leaves or litter. Sods can be placed on the branches to hold them in place, and pieces of boards or evergreen branches can be placed over the leaves to keep them from blowing away.

One of the principal causes of failure with Roses is uncovering them too early in spring. It is seldom advisable to remove the covering before the first of April, and then only a portion of it should be taken off at first, leaving the remainder about two weeks longer. It will be better, in many cases, to leave it on for a still longer period, should the season be backward. The plants should then be pruned, and the beds receive a good dressing of well-rotted manure, which should be forked into the soil about the roots of the plants.

Hybrid perpetual and moss Roses bloom best on strong, new wood, therefore they require cutting back pretty sharply before growth begins.

Climbing Roses should have all the weak wood removed, and as much more as is necessary to keep the plants within proper limits.

MRS. CHAS. WOOD.

Some of the best hardy varieties are:

George the Fourth, rich crimson, in clusters. Full and sweet.

Persian Yellow, very rich in color, profuse, and extremely hardy. The best yellow.

Provence, or Maiden's Blush, an old favorite of exquisite sweetness. Identical with the old Damask.

Blanche Moreau, a moss, pure white, of large size and very fine form.

Henry Martin, moss, pink, tinged with crimson, exquisitely mossed.

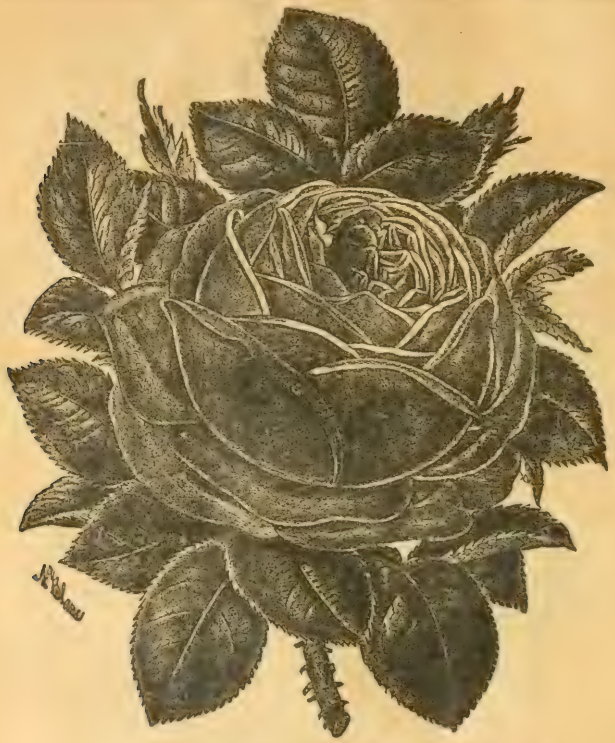
Luxembourg, moss, bright, rosy crimson, finely mossed.

The two best climbing Roses are:

Baltimore Belle, blush white, double, borne in very large clusters.

Prairie Queen, bright rosy red, clusters, and wonderfully free.

The most beautiful class of Roses is the hybrid perpetual. The term perpetual is something of a misnomer, as it gives those not familiar with this section the idea that it is an ever-blooming one. Such is not the case, however. The perpetuals bloom most freely in early summer. Some of them bloom somewhat freely at intervals thereafter, if given proper treatment, but



BARONESS ROTHSCHILD.

most kinds produce but few flowers after the first blooming period, but these few will be prized more highly than those of early summer because of their perfection at a season when Roses are rarities.

To succeed with this class, a very rich soil must be given them, and they must be cut back after each period of flowering. Rich soil and pruning stimulates the production of new branches, and new wood is essential if you would have flowers.

Below I give a list of the best of this class:

Annie des Diesbach, bright rose color.

Baroness Rothschild, pink, with satiny texture. Very beautiful in form.

General Jacqueminot, a great favorite, and one of the best. Velvety crimson.

Madame Alfred Carriere, flesh color, tinged with salmon.

Mabel Morrison, pure white Beautiful.

Marie Bauman, carmine. Superb.

Prince Camille de Rohan, crimson-maroon, Large and very fine.

General Washington, soft rosy-scarlet.

Jules Margottin, cherry red. Fine.

Paul Neyron, very large, and of fine form. Satiny rose.

Magna Charta, carmine.

Maurice Benardin, bright crimson.

Alfred Colomb, crimson tinged with carmine.

Mrs. John Laing, bright rose, very sweet, and free flowering. One of the best.

Captain Christy, pink, with a silvery luster.

American Beauty, bright rose. Very large and fragrant.

Mrs. Charles Wood, rosy crimson. One of the freest flowering kinds.

Her Majesty, large, of a delicate pink.

John Hopper, rose, shaded with carmine. One of the best.

Coquette des Blanches, white, tinged with flesh.

Perfection des Blanches, milk white, in clusters. Very free flowering.

Madame Alfred Roquemont, white, tinted with pale rose.

Ulrich Brummer, cresire-red. Superb.

Giant des Battailes, brilliant crimson,

Marshall P. Wilder, cherry carmine.

Victor Verdier, cherry rose.

White Baroness, pure white with shell-shaped petals.

Baron de Bonstettin, rich dark red, shading to a velvety maroon. Very sweet.

PRINCE CAMILLE DE ROHAN.

Fisher Holmes, crimson scarlet.

Eugene Furst, velvety crimson, shading to maroon. One of the best.

Louis Van Houtte, bright crimson, shading to dark scarlet.

This list is a brief one, including, as it does, not one in twenty of the really desirable varieties in general cultivation among experienced gardeners. But it should be borne in mind that experienced gardeners can do with Roses what the amateur cannot; therefore I would advise the beginner to confine his selection to the list given, because the varieties there named are such as do best under ordinary care.

In another chapter I have spoken of the treatment required by the ever-blooming-class. I do not include them here because they are too tender to remain out of doors safely during our severe winters.

The Culture of Outdoor Bulbs.

ONLY those who have grown bulbs in the garden know how to appreciate them fully. Coming into flower with the going of the snow, and continuing through the remainder of the spring months, as they will if one is careful to plant a sufficient variety, they help to extend the yearly season of flowers wonderfully. Were it not for them, we would be obliged to wait until June for flowers, except those of a few early herbaceous kinds, and all of us know what a long and dreary time of waiting it is between the last March snowstorm and the warmth and beauty of a real June day. But with a bed of bulbs we may have a show of bloom whose beauty is quite equal to that of any of the fall months through the entire month of April, and May becomes almost a summer month, so far as color and brightness in the garden is concerned.

Grow one bulb successfully, and after that you will not willingly be without a bed of them, and in all probability one bed will not satisfy you. That one first bulb will give you a hint of the wealth of beauty and pleasure in store for you if you plant Snowdrop and Crocus, Tulip and Hyacinth, and the charming Narcissus or "Daffy-down-dilly" of the poets, who have loved this flower from time immemorial, and who have sung its praises in such lavish fashion that, were it possible to make a flower conceited, it would be a very vain, conceited flower indeed. There is something about this flower that wins the heart of the flower-lover at first sight. It is among the bulbs what the Rose is among the class to which that favorite belongs, and not even the queenly Lily outrivals it in its hold upon the heart of the lover of all that is beautiful and sweet among flowers.

In order to grow bulbs well they must planted in fall, and as early in the season as possible.

Bulbs make their annual growth in spring. They ripen during the early part of summer. After that they are prepared for market by the dealer. The sooner they are put into the ground after they come into the market the better for them.

September is as early as the bulbs can be obtained from the dealers, under the most favorable circumstances, and, as a general thing, about all you will be likely to get from them during this month is the catalogue, which is sure to bewilder and fascinate you with its engravings and its charming descriptions of the beauty you can buy for a small amount of money. Orders are not filled to any great extent until October.

But all necessary work in the bulb-beds should be done in September, so that the bulbs can be put into the ground as soon as received.

The first thing to consider is location.

If possible, select a place sloping to the south, and let it be naturally well-drained. You cannot expect to have fine flowers from any bulb if the drainage of the soil in which it is planted is not good. If waters from heavy spring rains and melting snows stand about their roots the bulbs will be sure to become diseased, and that is the end of all chances for good flowers. Bulbs insist on having a soil to grow in in which water is not retained for any length of time in spring.

If you cannot give them such a place, do not try to grow them.

Even if you consider the location of your bulb-bed a fairly well-drained one, it will do no harm to treat it as if you were not quite sure about it. It is better to be positive about it than doubtful.

Let us suppose that you are beginning work on a bed or bulb. The first thing to do is to take a spade and turn up the soil to the depth of at least a foot. It will do no harm if you go deeper than that, but on no account fail to work the ground to a depth less than a foot if you want good plants. Throw the soil out of the bed, and let it lie where the sun can get at it. It will come out in chunks, but after the sun has shone upon it for a day or two, you will find it ready to crumble beneath the hoe or rake.

Before returning the soil to the bed, collect all the old rubbish in the shape of tin cans, broken dishes, boots and shoes, and the like, that can be found about the premises, and dump these into the bottom of the excavation. Let there be at least six inches in depth of it. By doing this you will be killing two birds with one stone—you will be providing material to assist in the perfect drainage of your bed, and you will be getting rid of refuse that is unsightly.

Having provided for drainage, fill the bed with soil. Mix with it a liberal quantity of thoroughly rotted cow-manure, if possible to obtain it. Work it into the soil as evenly as possible. You need not be afraid of making the soil too fine or too mellow. Indeed, one of the secrets of success in bulb-culture consists in having a rich, deep, mellow soil for them.

Use no fresh manure. Unless you can get that which is at least a year old it is better to go without.

If the soil is a somewhat heavy one, lighten it by mixing in sand, old mortar, or coal ashes, if you have nothing better at hand. A light, open, porous soil that never becomes hard in the dryest weather is the best one you can have for bulbs.

You will find that your bed is considerably higher than the ground about it when you attempt to put back the soil thrown out of it, especially if you have provided liberally for drainage. This is as it should be. Have the center at least eight inches higher than at the edges, and if it is a foot it is just as well, for when the loose soil comes to settle, as it will after a little, there will be none too much elevation. Not only does such a bed display the flowers on it more effectively than a flat one, but it prevents water from rain or snow from standing on it.

The size of your bed will of course be determined by the quantity of bulbs you intend to plant. If you look over the instructions in your catalogue carefully, you will find rules to guide you in planting the bulbs described in it, and I need not take space here to give them. It will

tell you how far apart to plant the various kinds, and a little calculation will enable you to tell how large a bed you must prepare for the number you order.

Never make the mistake of planting any bulb singly if you want a strong effect. Always group them.

I would advise planting each kind by itself. A much more satisfactory effect is secured by keeping Tulips, Hyacinths, and other varieties in beds by themselves. While they are all bulbs, they do not all harmonize, either in habit, color, or season of flowering. If you do not have enough of any one kind to fill a bed, give up the bed system, and plant them in little clumps.

The Hyacinth, which is a general favorite among bulbs because of the bright color of its blossoms, and its delightful fragrance, comes in advance of the Tulip, and is preferred by many to that brilliant and justly popular flower. If I were obliged to choose between the two, my choice would be the Hyacinth.

There are single and double sorts. My preference is for the single varieties, because the flowers stand out more clearly and gracefully on the stalks, not being as crowded as the double ones are. I am inclined to think, from past experience, that the single kinds are more to be depended on for a good crop of flowers than the double varieties.

As to color, we have red, white, blue, and yellow, with many intermediate shades, so that all tastes in this direction can be suited.

I would never advise planting a mixed collection, if separate colors can be afforded. Where all colors are planted together, the effect is very much the same as where different kinds of bulbs are grown in the same bed. There is a lack of harmony, and a weak effect generally. Reds, blues, and yellows growing together produce a brilliant mass of color, but the combination is not pleasing to the critical eye.

If you like a contrast of colors in the same bed, and can afford the expense of buying bulbs in collections whose colors are guaranteed by the florist, fine effects can be produced by planting in rows of distinct colors, either red and white, blue and white, or red and yellow. Designs of stars, diamonds, and the like can be worked out quite effectively by using the various colors in solid masses.

If both double and single kinds are grown, I would give each kind a bed by itself.

In planting Tulips, care should be taken to not mix the early and late varieties. If you do, you will have a straggling procession of flowers, instead of a massive and satisfactory display of each kind, during its proper season, as you may have if you plant intelligently. There are several classes of Tulips, and it is well to keep these by themselves.

The range of colors in the Tulip family is wonderful in variety and brilliancy. There are scarlets and crimsons so vivid as to dazzle the eye; brilliant yellows, and delicate, soft pinks, pure whites, deep purples, and glowing vermillions, and many varieties in which contrasting colors are blended in stripes, flakes, and blotches. The Parrot section is well named, as it includes all colors peculiar to the bird from which it takes its name, but it is not as beautiful as the other kinds, and it is not as reliable as they are.

Among the most desirable varieties of single Tulip for the amateur, I would name the following:

Artus, deep scarlet.
Chrysolora, pure yellow.
Joost von Vondel, rose, striped with white. A lovely flower.
La Reine, white, tinted with rose.
Wouverman, purple.
Colour Ponceau, crimson and white.
Duchess de Parma, crimson and orange.
Proserpine, deep rose.
Grand duc de Russie, violet aad white.

The Duc von Thol varieties come in scarlet, crimson, yellow, rose, and white. They can be bought cheaply in collections in which the several colors are kept separate. Where one has a good sized bed to fill, and wants the colors by themselves. this is the best kind to order.

If you want specially fine varieties, the list given above can be relied upon as including the best of their class.

The doubles come in early and late varieties, and each class should be kept by itself in order to secure evenness of bloom. I name a few of the most distinct varieties of the early doubles:

Couronne d'Or, golden yellow.
Duke of York, rose, edged with white.
Marriage de me Fille, crimson striped and flaked with pure white.
Rex Ruborum, bright scarlet.
Salvator Rosa, pink and white.
La Candeur, pure white.

If a bed is planted with Rex Ruborum and La Candeur, the result is very satisfactory, as they bloom at the same time, and the size and height of flower is the same.

Below I name a few of the late doubles. These will come into bloom after most other sorts have passed their prime:

Orange Kroon, bright orange.
Poupre Pordre Blanc, violet, edged with white.
Rose du Printemps, white and rose.
Rose Eclante, crimson.
Admiral Kingsbergen, yellow, striped with red.

There are two other classes of Tulips, a few of which should be included in all collections—Pybloems, with white ground marked with lilac, purple, or black, and Roses, with scarlet, pink, or red markings on a white ground.

The Daffodils are mostly in white, cream, and bright yellow. Some show tints of red and scarlet. Some are single, some double, all beautiful. They are most effective when planted in clumps here and there, in the grass of the lawn, in the border, and among the shrubbery. You cannot have too many of them. They are excellent for cutting.

The Crocus is a charming little thing when planted in masses or groups. It comes in white, purple, and yellow, and some varieties are beautifully variegated. Be sure to have a bed of them.

The Snowdrop is a dainty flower that often shows its smiling face before the snow is gone. There are three good varieties—the single white, the double white, and the Giant, a variety having large flowers of pure white with emerald throat. Plant these flowers here, there, anywhere, everywhere, and you will be delighted with them.

Two good flowers to plant in connection with

Crocus are Chiondoxa, blue, with white center, and Scilla Sibrica, blue.

In November, when you think the ground is about to be frozen, cover your bulbs with coarse manure, leaves, or litter of some kind. Let this covering remain on in spring until you see the tips of some of the plants peering through. Then remove it very carefully, that none of the tender shoots may be injured. If cold nights come on, as they are likely to all through March, and often well along in April, at the north, throw a blanket over the beds, first placing stakes at the corners and in the center to prevent the covering from falling or resting on the plants with such weight as to break them.

The bulbs will ripen in a few weeks after flowering. They can be taken up then and reset, if desirable, or they can be allowed to remain in the bed year after year.

If left in the bed, annuals can be grown among them without injuring them in the least, if care is taken to not disturb them with hoe or rake in preparing the soil for the others.

Flowers for Cutting.

Until within the last few years flowers have not been planted to any great extent with a view to cutting from them. They were grown to ornament the garden, and it mattered not at all whether they had long stems, or short stems, or no stem at all, so long as there was plenty of flowers and a good show of color.

But this has changed, and to-day almost every woman who grows flowers considers their desirability for cutting, in selecting them. Flowers are rapidly growing in favor as a means of personal adornment, and I am very glad of this, for nothing is more beautiful in connection with woman's apparel than a flower chosen in harmony with the color and general effect of her dress.

A flower is one of Nature's jewels. It is always appropriate where any kind of decoration is admissible, and always in the best of taste, provided good taste is exercised in its selection. Not all flowers are suited to all persons. Some can wear those of heavy texture and vivid colors who could not wear delicate sorts. A graceful, willowy form seems in harmony with the colors and outlines of some of the rare Orchids, while on a woman of stout build and considerable adipose tissue such a flower would seem out of place. Suit the flower to the woman who is to wear it, and one can well do without "jewels of gold and precious stones."

In selecting flowers from which to cut for personal decoration, one of the first things to consider is length of stem. Short-stemmed flowers may be very attractive in themselves, but they cannot be arranged attractively. You cannot form them into a bunch for the throat or corsage without huddling them so closely together that all individuality is destroyed. You get a mass of fine color perhaps, but nothing else, while what you want most is a flower standing out so prominently from the foliage which should always accompany it as a foil and contrast to its beauty that its individuality is distinct. Its form, and every outline, should be apparent to each observer. One flower, so displayed, is always more effective than many so arranged that they become a mere mass of color. One reason why Sweet Peas and Chrysanthemums are so popular is, that they have long stems which enable the individual flowers to display themselves to advantage. It is never necessary to crowd them, hence it is possible to preserve the delicate outline and natural grace of each blossom, no matter how many you use at a time. Individuality is not sacrificed.

Have you never thought of flowers as persons? In a small congregation of people you do not lose sight of the peculiarities of each one; but in a large crowd you cease to notice the peculiarities which characterize the individual. It is precisely the same with flowers. A few are better for most purposes than many. This is always true where it is desirable to call attention to beauty in its highest aspects, which is another term for individuality. Always treat a flower as you would a person if you want it to appear to the best advantage. Think this over, and you will see the force and justice of the advice.

The Rose is a favorite for personal adornment, but most persons living in the country, away from greenhouses, are not able to enjoy Roses throughout the season, because the collection in their garden does not include sorts, as a general thing, which bloom after July. Some may have a few hybrid perpetuals from which a few flowers can be gathered at intervals, but these cannot be depended on with the treatment which they usually receive at the hands of amateur gardeners. But there is no reason why Roses should not be enjoyed from June to the coming of cold weather by every woman who has, or can have, a garden. The teas, Noisettes, and Bengal varieties are constant bloomers, when given proper treatment, and they are excelled by none in beauty of form, color, and delicious fragrance. Nearly all are borne on long stems, and nothing can be more beautiful than a spray bearing a half-opened flower, a bud just showing the rich color of its folded petals, and a few of its own leaves. From a dozen plants, costing a very small sum of money, it is easy to have flowers for personal adornment every day throughout the season, and some to give to friends. I know this to be true, because every year I have my bed of ever-blooming Roses, from which handfuls are cut daily, and what is true of a large bed is true in degree of a smaller one. It is surprising to see what a number of flowers can be cut from one plant in a season, if the right kind of treatment is given. "I couldn't use half the Roses that grow on my eight plants," said a lady to me last year. "I was envied by all my lady friends who had no Roses to wear after the summer-blooming varieties were gone." One lady said to me that she thought I must be getting extravagant, as Roses cost so much, and I was wearing them every day. "But mine cost me next to nothing," I told her. "I did not buy them—I grew them in my own garden." She could hardly believe me until I showed her my little bed of ever-bloomers. She had got into the habit of thinking, as many other women have, that Roses after July are to be had only of the florists, who ask such a price for them that people in ordinary circumstances cannot afford to buy them. If women knew how easy it is to grow these Roses, every one would have some of them.

That's it—if they only knew! But they don't.

Year after year I have written about their merits as bedders, and I am glad to see that many are growing them who had given them over to wealthy people as something not meant "for poor folks." All that remains to be done to make the ever-blooming Rose as popular among the masses for summer culture in the

garden as the Geranium is for the window-garden in winter, is to make them understand that it costs so little that every one can afford it, and that its culture is extremely simple, when once understood, and any one who really loves a flower can understand it perfectly after a little study and observation.

ROSE—MAD. HOSTE.

The ever-blooming Roses depend on constant development of new branches for flowers. Without a steady growth of such branches there will be no flowers, as all blossoms are borne on new wood. In order to keep up the production of new wood, it is necessary to cut back the old branches from time to time. As soon as all buds on a branch have developed into flowers, cut that branch back to some strong branch-bud. A little observation will enable you to tell what bud to expect best results from. So much for pruning. The condition of the soil is quite as important. In order to keep up a steady growth, it is necessary that the plants should be well fed. Give them all they can eat, and let the food given be such as suits them best. Nothing in the shape of a fertilizer produces better results among Roses than old, rotten cow-manure. It should be old and rotten enough to be friable. It should crumble easily. Mix in plenty of this with a rather stiff soil in which clay should play a prominent part, and you can be reasonably sure of growing good Roses if you carry out the instructions about pruning them. Stir the soil frequently to admit air and moisture, but do not dig deep enough to disturb the roots. In hot, dry weather mulch the soil about the plants with clippings from the lawn, or something that will shade the ground and retain moisture. This is very important.

Some of the very best varieties for cutting are the following:

Cornelia Cook—Color, creamy white. Form of bud, unsurpassed.

Coquette de Lyon—Canary yellow. Exquisitely perfumed.

Etoile de Lyon—Golden yellow. Large and sweet.

Duchess of Edinburgh—Intense crimson. A lovely flower.

Douglas—Cherry red, with velvety texture of petal.

Hermosa—Everybody's Rose. Soft, bright pink, full and sweet.

Princess de Sagan—Velvety crimson.

I have named a dozen varieties, all good, and

ROSE—JACQUEMINOT.

Luciole—Cherry red with yellow center. Very fragrant.

Madame de Watteville—A peculiar and most charming variety. Creamy yellow shaded with rose, and each petal bordered with bright crimson. Called the "Tulip Rose."

Marie Guillot—Pure white.

Perle des Jardins—Perhaps the best yellow, with the exception of Marechal Neil which it so greatly resembles that it is often sold for that variety.

Sunset—A favorite everywhere. Amber, shaded with copper and crimson. Sweet.

including all the leading colors and shades. Any or all of them will give the best of satisfaction if you give them the treatment I have advised. But I have by no means exhausted the list of desirable kinds. Indeed, for every kind I have named there are twenty other kinds equally as desirable in many respects, but those I have given special mention to are those which will be likely to give best results under an amateur's care, when grown in garden beds.

For use in tall vases, for the corner of the parlor, or the hall, or wherever a mass of vivid color is required to relieve and brighten shad-

owy places, the Gladiolus is one of our best flowers. Its tall spikes have a stately effect which cannot be secured with branching plants. If cut when not more than half the flowers on a spike are developed, the buds go on growing as if nothing had happened, and though a little lighter in color than the old flowers, because of being in a weaker light, they are quite as perfect in form. There is nothing in the way of foliage that combines very satisfactorily with this flower, and it is better to use it without any. Do not attempt to arrange the spikes after any set form. Just drop them into the vase and let them arrange themselves.

I have already spoken of the Hollyhock for similar uses. A combination of pale yellows and dark maroons is very fine. So is one of pure whites and soft pinks. Use no other flower with the Hollyhock if you want the best effect.

In autumn, grand color-effects can be wrought by using Golden Rod and Asters. These two flowers combine well, the pale, delicate colors of the one contrasting beautifully with, and heightening the richer hues of the other. At a fall wedding, the parlor was decorated with Golden Rod and Virginia Creeper, and the result was extremely pleasing. Long branches of the vine were trained over the doors and about the pictures, and allowed to fall gracefully and naturally, and the rich colors of the foliage gave a strong tone of warmth to the room, and afforded an excellent background for the bright yellow flowers, which were grouped or massed, instead of being scattered about thinly. These groups were placed at points about the room where such a mass seemed most appropriate, and they gave such a rich, bright effect that they suggested clustered lights. Simplicity was the keynote of the decorative scheme, as it should always be in order to secure most artistic results. Nature should be studied in these matters, as her taste is unerring, and she makes no mistakes.

Another excellent yellow fall flower which is capable of charming results in the hands of one who has good taste is Helianthus *multiflorus plena*. This variety of the perennial Sunflower is very bright in color, and lights up a room wonderfully. Its flowers lack that stiffness and formality which characterize most members of this family, and are never so large as to be objectionable. I have used them in combination with the semi-double and single Dahlias with satisfactory results. Only dark crimson, scarlet, or maroon Dahlias should be used with them.

Grand effects can be produced with the single and half-double Dahlias, using two or three contrasting and harmonious colors together. For a corner where shadowy effects seem appropriate, nothing can be finer than a great mass of velvety maroon varieties, their rich yellow centers furnishing just enough bright color to relieve the darker one in the body of the flower. For a lighter place the rose and white sorts are superb. In a room that you want to make seem lighter than it really is, use great quantities of the rich, glowing yellow varieties, and it will be as if you had concentrated the sunshine there. If you want a "white and gold" effect, use the pure white kinds in combination with the yellow sorts, and you will be greatly pleased with the result. Always cut these flowers with long stems to secure the most satisfactory effects from them. They are fine for use in rose-bowls, if you use enough of them. A few do not answer, as they fall apart, and have a sprawly look. Have so many that the flowers support each other, and hold each other in place. Cut them with stems of uneven length, and let them stand up or bend over the bowl, to suit themselves.

Another fine flower for use in tall vases, on the table, is Coreopsis *Lanceolata*. This is a hardy herbaceous border plant, bearing rich yellow flowers about as large as a silver dollar, which are held well above the foliage on long and slender stems. In order to make it satisfactory, cut the stems full length, and do not attempt to arrange the flowers at all. Simply drop them into the vase, which should have a flaring top, and give them a shake, and lo! your flowers have arranged themselves. These remarks about arrangement apply pertinently to the Sweet Pea, which is one of our best flowers for cutting. If one attempts to arrange this flower, she is almost certain to meet with failure. But we never seem to be able to understand that Nature knows much more about these things than we do. Sometimes, when I see the stiffly arranged flowers that result from our attempts to improve on Nature, I imagine that she is laughing in her sleeve at our ignorance and conceit; at other times I think she feels indignant at our presumption. Be this as it may, the flowers are always in complete sympathy with her, and in their loyalty they refuse to look well when we supersede her methods with our own. They only respond to *our* ideas of what is proper in as far as those ideas are true to Nature's rules and suggestions. Force them to take on forms contrary to those which she has taught them to be consistent with their habits of growth and they become stubborn and unresponsive, and look as awkward and uncomfortable as a small boy in Sunday clothes. I can never rid myself of the impression that flowers think, and know when we are in sympathy with them.

Last season I was much amused at the result of a friend's attempt to use the wild Crab Apple in decorating a room for a party. Every one who has ever seen this charming tree in bloom knows how graceful it is when seen in its native covert. But when you cut the branches, and take them into a room, and try to make use of them in the same way you use ordinary plants, like the Golden Rod, the Hollyhock, or Roses, you find that suddenly all the grace seems to have gone out of the flowers. Why? Simply because the branches were never meant to stand up as you force them to when you put them into a vase that will not allow them to reach out as they did on the tree. They were meant for use in low, wide-mouthed vessels, and nothing else, and unless you can use them in that way you ought not to use them at all. My friend was determined to conquer them, and make them conform to her idea of what was beautiful, and she put them into tall vases that made them look as uncomfortable as a boy standing on his head. They stood up because they had to, but they had their revenge in looking so stiffly ungraceful that they made the room positively uncomfortable in appearance, though I presume not half a dozen persons knew what produced the effect they were dimly con-

scious of. The next Sunday, at church, there was a wide-mouthed bowl on the pulpit filled with branches of these same flowers and the result was exquisite, and the reason why it was so was simply that the branches were allowed to assume such forms as were natural to them. Instead of reaching straight up, as they never do on the tree, they spread themselves out close to the pulpit cushion, making a wide, low mass of pink and white beauty that was the perfection of simplicity, because of its naturalness, therefore a perfect success.

For use in large, low bowls, as well as in deep vases where it is desirable to have something that droops or trails, we have no vine quite as beautiful as our native Clematis, with its panicles of airy, graceful white flowers. Both flowers and foliage are charming. This flower is one of the two or three kinds I would use with Roses.

I have made charming decorations of it in combination with the Oleander. Branches of two or three feet in length should be cut, and a weight of some kind attached to the lower end to hold them in place. If this is not done, they are often drawn out of the water by the weight of their drooping leaves and flowers, and when you discover what has happened, they are withered. Nothing can be finer for a simple pulpit decoration than a bowl into which three or four branches of this Clematis is fastened, the ends falling on the pulpit cushion, drooping over its edge, with a half a dozen large Roses in the center of the mass.

The other flowers that I would use in combination with Roses are the flowering Sumach and the native Elder, both pure white, and of light, airy, graceful appearance. Heavy flowers are not effective with Roses.

Pansies are charming for little bouquets in low, flat vessels, but worthless when used in any other way for table or room decoration.

Gypsophila is very pretty to use with most annuals, as its feathery white clusters afford a contrast for all other colors that heightens and brings out their beauty well.

The annual Calliopsis is very pretty for vases, having long and slender stems which hold the flowers well in air, and give them a graceful appearance.

Mignonette should be used freely, as its neutral color helps to bring out the beauty of richer colors, and its delightful fragrance fills the room with "odors of Araby the Blest."

Lilies are favorite flowers for use in tall vases, but they should never be combined with any other flower, if you want them to give the best possible effect. No matter how beautiful the flowers are which you put with them, they are sure to suffer from comparison with the Lilies, and the Lilies seem to resent their presence. Plants of Lilies growing in pots can be used with other flowers in decorating rooms with good results, but cut them and put them in the same vase with other flowers and you will understand that there is a lack of harmony resulting from the contact which was not apparent when the plants were used. It would seem as if, in order to assert their individuality properly, they must not be forced to become too familiar with other flowers. They are Lilies, aristocrats of the floral family, and plebian flowers must keep at a respectful distance.

Nothing makes a finer bouquet for the desk or the breakfast table than a spray of Tea Roses, cut so that a full-blown flower, a half opened one, and buds in various stages of development are secured, with some foliage of rich green and the reddish tints peculiar to the young growth of this variety of the Rose. A wine-glass makes a good holder for such a bouquet.

For large Roses, like the Hybrid Perpetual, or the Provence, or others of the June flowering section, bowls are better than vases, and branches are cut in sprig with a top six inches across, is effective.

Never crowd Roses. Half a dozen in a small vase or bowl are vastly more satisfactory than several times that number would be. They should have an opportunity to display their individuality. They should always be cut in such a manner as to give each flower some foliage. Roses without foliage are only half as pleasing as those with a good deal of it.

Do not make the serious mistake of using pink and yellow kinds together. Pink and scarlet or crimson sorts do not harmonize. But yellows, or whites, and dark scarlets are very effective. So are dark red or pale pinks when used with whites, and whites and rich yellows are very pretty together.

A half opened Perle des Jardins, or Sunset, with a spray of purple or lavender Heliotrope, makes a charming combination for a little bouquet. A creamy white Tea Rose, or a rich yellow one, with a dark, velvety, purple Pansy is charming as a buttonhole bouquet, or for the throat.

The Nasturtium is one of our best annuals for cutting. Its rich orange and scarlet tints, in combination with its pale green foliage, are extremely bright and effective for use on the table or the mantel.

Vines.

One of the best vines for use about verandas and porches, or for training over wire netting, to form screens, is the Clematis. There are many fine varieties, of various colors. Perhaps the most popular sort is *Jackmanii*, a rich violet-purple, with very large flowers. This is a strong grower and a very free bloomer. Henryii, pure white, is fine to plant with this variety, the contrast between the two being very striking and effective if trained up together.

Coccinea is a scarlet variety, very unlike any other in the shape of its flower.

Duchess of Edinburgh is a double white variety.

Beauty of Worcester, bluish violet, with double and single flowers on the same plant.

Lawsoniana, rosy purple.

Paniculata, small, pure white flowers, in panicles. Very sweet. Not as showy or striking as Jackmanii, but exquisitely beautiful. This and Flammula, a native white variety, with graceful, feathery flowers, I consider the best of all where dainty, delicate beauty is concerned.

In fall, cut the vines back to within two or

CLEMATIS.

three feet of the ground, and lay the top down on the ground, covering with leaves or litter.

Honeysuckle.

This old shrubby vine is always a favorite, as it deserves to be. Its flowers are beautiful, sweet, and produced in great profusion during the season. Its culture is as easy as that of any shrub.

The leading varieties are:

Halleana, white, changing to yellow.
Scarlet Trumpet, scarlet.
Monthly, red and yellow.

Wistaria.

For locations south of Chicago this is one of the finest vines that can be selected. North of that point it cannot be *depended* on, though I have seen very fine specimens much farther north. It is a wonderful grower, often reaching the cornice of three-story houses. Its flowers are pea-shaped, and produced in great, pendulous clusters. There are two leading varieties, pale blue, and white. Planted together, the two sorts are very effective.

Ampelopsis.

This is our native Virginia Creeper. It is one of the finest vines we have, clambering all over the walls and roof, and going where the Ivy goes, in places where the latter is hardy. In autumn the foliage becomes a brilliant crimson, and the plant seems a mass of flowers of most brilliant color. Probably our best native vine for general use.

Celastrus.

Celastrus *scandens*, or Bittersweet, is another excellent native vine. It is a very rapid, vigorous grower. Its foliage is always bright and pleasing, and never attacked by worms or insects. It bears great quantities of fruit, in drooping clusters, each berry of bright crimson being enclosed in an orange capsule, which divides in three parts, and discloses the fruit within. These clusters are as ornamental as flowers, and remain on the plant all winter if not taken by the birds.

Aristolochia.

A vine of rapid growth, with very large, heart-shaped leaves, and brownish flowers, shaped something like a pipe, hence its popular name of "Dutchman's Pipe."

Akebia Quinata.

A very beautiful and luxuriant vine, with magnificent foliage, and flowers of chocolate-purple, having a delicious perfume. A rapid grower, and unsurpassed for covering trellises and verandas.

Bignonia.

A most beautiful vine for the central and southern sections of the United States. Too tender at the north. Foliage very beautiful. Flowers trumpet-shaped, orange-scarlet in color, and produced in large clusters, contrasting charmingly with the foliage. Known in many localities as Trumpet Creeper.

The Propagation of Plants.

Most plants that are grown in the window or greenhouse are propagated from slips or cuttings. "Slip" is the term in general use among amateurs—it means the same thing as cutting, which is the professional florists' name—and refers to branches cut or broken from the old plant, and inserted in soil or water, where they form roots of their own and become independent plants. Nearly all kinds in general cultivation root readily under proper conditions. Some are quite difficult to make grow from cuttings, and these are best propagated by layering, which process will be described farther on.

I have spoken of proper conditions. Let me explain what I mean by that.

I find that most cuttings strike best—that is, for roots—in an open soil through which the air can circulate freely. This soil should be kept moist at all times, and warm, for moisture and warmth are conducive to a satisfactory development of young roots. Under these conditions, cuttings of Geranium, Heliotrope and Fuchsia, and nearly all other plants of a similar class, will strike in a week's time, and not one in a hundred need be lost, if care is taken to have it in the right condition at the time of taking it from the old plant. Imperfectly developed wood is not good, neither is too old a branch. There is an intermediate stage of development, when the branch is neither tough or brittle, and that is the condition your cutting should be in. A little experience in rooting cuttings will enable you to tell at a glance when one is too young or too old. Until you have had this experience, perhaps the best way to tell is to take the branch in your hand and give it a sudden, sharp bend. If it about half breaks, but still seems loth to part, it is just about right, and you will be justified in making a cutting of it. Too green, soft wood rots easily before roots form, and too old wood takes so long to form roots that the vitality in the branch is about used up before roots are formed to feed the plant.

Cuttings having a tough bark, like Oleander, Ivy and other plants of similar habit, often root most surely in water. For this purpose use a large-mouthed vial. Fill it partly full of pure rain water, and hang it in a sunny window where the sun can strike the water, but have a paper or shade arranged in such a manner as to protect the top of the cutting from the sun. Drop the cuttings loosely into the bottle. As the water evaporates add more, keeping the bottle about half full. In two or three weeks many cuttings will show tiny white roots at the base. Some will not form roots in as many months. When the roots have grown to be an inch or two in length, and there are several of them, the young plant can be lifted carefully out and set in very light, fine soil, taking great care to not break or bruise the roots, which are very delicate at this period of growth. I would advise sifting the soil about the plants rather than putting it on with pressure, firming it by putting on a sufficient quantity of water to settle it.

I generally use some such shallow vessel as a soup-plate filled with coarse sand in which to strike cuttings. Of course, if one is going to make much of a business of it, a regular cutting-bench with bottom heat is the proper thing to have, but amateurs will find the soup-plate quite equal to their requirements. The sand should be *pure* sand, not a mixture of sand and clay, or sand and loam. These make a muddy mass, in which cuttings do not form roots readily. If you have no sand that is free from these elements, wash it until you get rid of the clay and loam, by putting it in a sieve and pouring water over it. The finer portions of soil will run through with the water, leaving a sharp, clear sand, which is what you want. Fill your plate nearly full with it, and shake it down into a compact mass. Pour on enough water to moisten it all through, but not enough to make it *wet*. As evaporation takes place—and it will be rapid, because the sand is so porous if kept in a warm place—add more water, aiming to keep it in a condition of moisture all through at all times.

In this sand insert your cutting, pinching the soil firmly about its base. By following the advice given—that is, keeping it warm and moist—you can be reasonably sure of success. But if you let it get cold at night, or it dries out, you can be pretty sure that your cuttings are spoiled.

If your cuttings root, you will soon notice that young leaves are being sent out at the top of the slip. When four or five leaves have developed, it will be safe to transfer the cuttings to pots. Use very small ones at first, but be sure to see that they never dry out. Unless you watch them carefully they will be likely to do so, as the bulk of earth in each to retain moisture is very small, consequently easily affected by the atmosphere. It is a good plan to set your little pots close together on sand, and fill in about them with more sand. In this way you can keep them moist at the roots very easily, until it is time to put them in larger pots. If you put them in large pots at first, you make a great mistake. They generally die when treated in this way, and the amateur florist is at a loss to understand why. It is because there is more soil in the pot than the young roots can make use of, and the plants are over-fed. Their stomachs are too delicate to digest the great quantity of food forced upon them, and they die of dyspepsia. Give a young plant just out of the cutting-plate a pot not larger than two inches across. When this is filled with roots, and not before, shift to a pot of larger size.

In selecting cuttings, do not make the mistake of having them too large to begin with. One, two or three inches in length is quite enough. Clip off the leaves on the part to be inserted in the soil close to the stalk, and leave but one or two at the top. But do not trim off all the leaves, as some do, because there must be a little leafage left on to enable the plant to breathe while roots are forming.

In this manner most plants can be propagated readily, as I have said, but some out-door plants are propagated more certainly by layering. This method consists in taking a branch that is thrown out near the base of an old one, and bending it down so that a portion of it can be inserted in the soil near the old plant, leaving it still connected, however. If a slight break is made on the lower side of the branch, at the point where it goes under the soil, or a little cut is given at that point, roots form more readily, as the flow of sap is checked at that point, and a callous form, from which roots are sent out. It is well to peg the branch down firmly where it is inserted in the soil, so that it will not be shifting about. A stick should be set near it, and the end of it tied so that it retains an upright position. It often takes weeks for a branch to root under this plan, but is generally successful. If you have any doubts about roots having formed, do not sever the connection between the young and the old plant in fall, but let them remain until the following spring. This is the best way in which to root Ivies.

The Gloxinia and Rex Begonia can be propagated by taking the thick leaves and laying them down on a saucer of moist sand, which should be kept warm. Before putting them in position on the sand, cut across the thick ribs on the back of the leaf in several places. Then place them so that these places will come in contact with the sand, pinning them down, or fastening them by laying small stones on them, so that they cannot be shifted. In a short time young plants will start at the points where the cuts were made.

Dahlias can be propagated by division of the tubers, after the manner of Potatoes, being sure that each portion has an "eye," or growing point. Also, by rooting cuttings. Better plants are grown in this way than one will be likely to secure by planting a whole bunch of tubers, as many do. By division, you can get a great many plants, while by planting the whole bunch together you get but one.

In starting Tuberoses into growth in the house early in the season, as it is advisable to do at the North, where the season is short, it is always best to cut off the old and withered roots at the base of the bulb before planting them. Cut them off pretty close to the solid portion of the bulb. If this is not done, these old roots often decay before new roots are formed, and decay is communicated to the bulb through them, and failure results.

Dahlias and Tuberoses, being natives of the South, where the seasons are long and warm, require early starting at the North, in order to insure success with them. Unless started into growth in March or April, they seldom come into bloom before time for frost, and a slight freezing ends them. Dahlias can be potted in large pots or boxes, without separating the tubers. When it is safe to plant them in the open ground, the tubers can be broken apart. In starting Tuberoses, plant the bulbs in pots of light, sandy soil, and keep them quite warm and moderately moist until growth sets in. When you plant them out, turn them out of their pots without disturbing their roots.

Many persons want to get a "start of the season" with their annuals. They sow the seed in pots and boxes. The plants germinate, grow rapidly for a short time, and then die off. Why? Generally because they have been forced to make an unnatural growth. They are kept too warm and too moist at the roots, but too dry at the top, and they get but little fresh air.

In order to grow seedlings well in the house in the spring, great pains must be taken with them. They must not be kept in too warm a place. A temperature of 65 degrees is quite warm enough for them. Do not water them too much. Just keep the soil moist—never wet. Have the air of the room moist, by showering the young plants with a fine spray, or by evaporating water on a stove or register. And be very sure to admit all the fresh air possible. Do not open the window so that cold air from out of doors can blow directly on them, but open a door or window at a little distance from them, and let the fresh air come in and mix with the warm air in the room before it reaches them. This is very important. You cannot grow plants well in the house from seed unless you follow these instructions. On all sunny, warm days, it is well to set the pots or boxes out on the veranda, if it is sheltered from the winds, and let them remain there until three or four o'clock. In this way they become somewhat used to out-door conditions before the time comes to plant them out in the open ground, and they will be all the healthier for it. If kept too close and warm, and away from pure, fresh air, the young plants will be so weak and spindling, and so lacking in vitality when the time comes to plant them out, they will suffer greatly from the check caused by change of conditions, and very frequently they die because of it. Plants so weak that this change checks them are a long time in recovering from it, and, as a general thing, plants grown from seed sown in the beds at the time of putting out, the house-grown seedlings get the start of them. The way to prevent this is to take such care of the plants started in the house that they are strong and healthy, and able to stand the change when it comes. If care is taken to grow them in this condition, at least a month can be gained by starting them in the house. But I would not advise it for the hardier sorts of annuals, because they are better able to take care of themselves than the amateur florist is to take care of them, when growing in pots and boxes. A good deal of labor, and a very great deal of attention is required by seedlings in early spring, if you want them to be what they ought to be.

Soil for House-Plants, Potting, Etc.

When the writer of this little manual on floriculture began to grow plants in the house, it was generally supposed by the amateur—because it was taught by the writers on floricultural topics—that a special preparation of soil should be made for each plant.

Since then amateurs, as well as professionals, have found out that most kinds of plants suited to culture in the house or greenhouse succeed very well if grown in the same kind of soil—that is, that the compost that grows one well will answer as well for the other kinds.

This simplifies the work vastly.

A very good compost, in which nearly all kinds of plants can be grown satisfactorily, is prepared as follows:

One-third good garden loam.

One-third leaf-mold, or, if this is not obtainable, turfy matter scraped from the bottom of old sods in roadside or pasture.

One-sixth old, well-rotted manure.

One-sixth sharp, clean sand.

These elements should be mixed well together. The result will be a compost that is mellow, friable and rich.

If turfy matter is used instead of leaf-mold, care should be taken to have it full of the fine roots of the grass, as it is this vegetable matter that takes the place of leaves.

Sand is a most important ingredient. Without it, most soils become so firm and compact that water is retained, and souring takes place, leading to an unhealthy action of the roots and the consequent death of the plant. With a proper proportion of sand in the soil it will be always friable, provided the item of drainage is given proper attention.

I consider sand of more importance to the well-being of a plant than manure is. If I could have but one, I would choose sand every time, as the condition of the soil has quite as much to do with a plant's development as the quality of it. Very fair plants can be grown in a soil of only moderate richness, if it is open and light, but plants can never be grown well in a heavy, soggy soil, no matter how rich it may be.

In getting ready to pot plants, the first thing to do is to soak the pots, if new. Put them in a tub of water, and let them absorb all the water they will. If this is not done, the porous clay will draw the moisture from the soil and the roots will be severely injured at the very time when they ought not to be interfered with by any such drawback as lack of sufficient moisture. If old pots are used, they should be scrubbed clean with a stiff brush and soapy water.

I consider clay pots, unglazed, preferable to anything else in which to grow plants.

Boxes answer very well, but the constant moisture inside the box soon brings on decay. It is a much more difficult matter to transplant plants grown in boxes than in pots, because the mass of earth in which the roots are will not slip out of a box smoothly, as it will out of a pot, consequently there must be more or less disturbance of the roots of the plant when change is made. Tin cans are frequently used, but their use is always to be discouraged unless holes are punched in the bottom for drainage.

Glazed pots are not as good as unglazed ones, because their glazing destroys their porosity, but if drainage is attended to they answer very well in the living-room. In the greenhouse I would never use them.

In potting plants, have a quantity of drainage material ready for use along with your potting soil. This can be made of broken pottery, crockery, brick, or small stones—anything that will not decay. There should be from an inch to three inches of this put into the bottom of each pot, according to its size, before soil is added. Care should be taken to not have this material too fine, as that causes it to pack firmly in the bottom of the pot, and the application of water brings the soil down among it until the crevices are filled and drainage is prevented. Use large pieces in the bottom, filling in with smaller as you work towards the soil. It is a good plan to put a layer of sphagnum moss over the drainage material. This lasts for a long time, and prevents the soil from getting down among the crockery or whatever is used below. By the time it decays the roots will have reached and penetrated the cracks and crevices between the bits of matter used, and when that is done there is no danger of soil working in.

In potting a plant, do not fill the pot with soil at first. Put in a sufficient quantity to cover the material in the bottom, and then set in your plant, and fill in about the roots with soil, working it down among them well. If this is done, the pot will not be so filled when the process of potting is completed, that there is no space at the top for water. At least an inch, or an inch and a half, should be left between the top of the soil and the rim of the pot. In watering, you can pour on enough to thoroughly penetrate the soil by filling this space. If the pot is filled with soil most of the water applied runs over its edge, and the result is that very little moisture gets down among the roots where it is needed, unless there are frequent applications daily. More plants die from lack of moisture at the roots than from any other cause, I think. A slight application makes the surface of the soil look moist, and from this the owner gets an idea that it is moist all through. But an examination would show that the soil a short distance from the top is dry. Enough must be given to thoroughly penetrate all the soil in the pot in order to grow a plant well. An inch and a half space between the soil and rim of the pot will accommodate enough water to moisten the soil in the pot all through, as a general thing. Of course such a space is not necessary on small-sized pots, but small-sized pots must be given more frequent attention than large-sized ones, because they dry out more rapidly, the quantity of soil in them being so much less that evaporation takes place very fast.

It is not necessary to use such large pots as many seem to think absolutely necessary to the successful cultivation of ordinary plants. I have found that the majority of plants grown in the sitting-room do not need pots more than seven or eight inches across when fully developed, while the average plant is satisfied with a six-inch pot, if the soil is good. By the term "average plant," I mean Geraniums, Heliotropes, and plants of that class of the size usually seen in the window-garden. As a general thing most amateurs renew their plants yearly, consequently they never require a great amount of root room. Older plants should have larger pots, but most persons who have limited accommodations prefer to keep their plants to small sizes, so that they can have more of them. I think they would find larger plants, and fewer of them, more satisfactory.

When plants are young and increasing in size rapidly, it is necessary to give them frequent shifts to pots of larger sizes than those in which they have been growing. In order to know when it is necessary to do this, the condition of the roots must be examined. This is easily done by inverting the pot across the left hand with the plant passing through between the fingers. Then give the edge of the pot a sharp tap against something solid, and the ball of earth in it will be loosened, and the entire mass will slip out readily without disturbing the roots of the plants in the least.

If the roots of the plant have filled the mass of soil, and there is a network of them around its edge, it is safe to conclude that a shift is advisable. If only an occasional root shows itself, the plant does not require a larger pot just yet.

Older plants get along very well with a yearly repotting. It is a good plan to remove the top of the soil in fall, if the plant has grown much during the summer, and put fresh earth in its place, as considerable nutriment will be required to take the plant through the flowering period in good condition. If some fresh soil is not given, or the plant is not repotted entirely in fall, I would advise the application of some reliable fertilizer at least once a week, after September, if the plant is growing actively. If not, give no fertilizer until such growth begins. Some persons use fertilizers when their plants are standing still, thinking that something of this kind is needed to start them into growth. This is wrong. No plant is in proper condition to make use of rich food unless it is in a state of development, and to give such food to a plant that is taking a rest is to injure it. Bear this in mind always, and be governed accordingly, if you would grow your plants healthily.

In repotting plants, if a portion of the roots are broken off or injured in any way, always be sure to remove a corresponding amount of top.

The best time to repot plants from which winter flowers are desired is spring. This gives them a chance to grow during the season, and, as a general thing, when a plant is growing well it does not blossom much. After a development of branches, flowering begins. When buds appear, give the fertilizer you decide upon, and assist the plant in the production of fine flowers. If repotting were done in fall there would be a likelihood of bringing about a growth of top rather than flowers, and because of this danger I advise repotting in spring.

Plant Enemies.

If "eternal vigilance is the price of liberty," it is no less so of healthy plants. In order to have fine specimens it is very necessary that they be watched carefully, and kept free from the various insects and other enemies that will be pretty sure to attack them, if not given constant attention.

One of the most common insect pests with which the plant-grower has to deal is the aphis, or green fly.

The surest method of getting rid of this pest is that of fumigation.

If you have a small, close room, put the plants in it, at some distance above the floor, and burn tobacco stems and leaves under them, by dropping them, after having moistened them, on coals, which, for safety's sake, should be kept in an iron pot. The moistened leaves will give off a dense smoke, which, if confined long enough about the plants, will be quite sure to kill all the aphides.

If you do not have such a room, a large dry-goods box can be fitted up for fumigating purposes, which will answer very well. If the smoke is generated in a large room, a great deal more is required than will be necessary in a smaller space, and this smoke is very disagreeable to most persons, and leaves a strong stale scent on everything with which it comes in contact. It will be necessary to air the room repeatedly in order to get rid of it. It is therefore advisable to have a room or box fitted up especially for fumigating purposes.

The smoke must be dense and strong in order to be effective. I have seen some ladies scatter a small quantity of tobacco on a little bunch of coals in a basin, making about the same amount of smoke that a man gets from the ordinary pipe. This they would blow gingerly among their plants for a minute or two, and the next day they would pronounce the fumigating plan a failure. Their way of applying it most certainly was.

There must be smoke enough to stupefy the insects at once, and it must be confined about the plants long enough to kill the stupefied aphides, in order to make the plan effectual. Unless you can fumigate your plants in this way, there is but little benefit to be derived from the use of tobacco as an insectide. It is sometimes steeped in hot water, and the infusion syringed over the plants, but this is a most disagreeable thing to do because the tea stains everything with which it comes in contact, and it seldom puts the enemy to rout. Strong smoke will stupefy the pest so that it can be shaken from the plant, or, if confined about the plants, will surely kill it, and because of this certainty of results it is vastly preferable to any other method of using tobacco in fighting this enemy.

Coarse stems and leaves, such as cigar-makers have left after manufacturing cigars, are much preferable to tobacco sold at the store, because the latter is often drugged to such an extent that it loses the peculiar quality which is necessary in successful fumigation.

The red spider is quite sure to attack plants kept in a very warm room where the air is dry. This pest is one of the most destructive ones with which I am familiar. It is so small that it can hardly be seen with the naked eye, and quite often its presence is doubted because it cannot be seen. But if you notice the leaves turning yellow and dropping off, and the underside of them seems covered with a thin web, you may be satisfied that the spider is at work. On examination you will find little specks among the webbing, and these specks—which look more like grains of Cayenne pepper than anything else—are the insects which do so much damage to your plants.

The only remedy for this pest that I know of is water. He will not remain in a moist atmosphere. In order to get rid of him you must provide yourself with a syringe which will throw a spray with considerable force. Then daily, or oftener, shower your plants all over. See that no part of them escapes wetting. Be particularly careful to get at the underside of every leaf, for there is where he lurks. The thorough and often repeated application of water will surely drive him away, but it is often quite difficult to use enough of it in the sitting-room to accomplish this purpose. It is a good plan, therefore, to fill a tub with water and immerse the plants in it, allowing them to remain some time. This will drown the insect and effectually rid the plants of the enemy, and after this is done it is possible to keep it from obtaining another foothold on them by the liberal use of water daily, being careful, as I have said, to see that every portion of the plant is reached by the application.

The mealy bug is a hard creature to fight, because he gets down in the axil of the leaf, in every crack and crevice of the pot, and under the bark of rough-wooded plants. But by the use of an emulsion of kerosene he can be routed. Prepare this emulsion according to the following formula:

5 parts kerosene,
1 part fir-tree oil,
20 parts water.

Put these together in a watering-pot and agitate rapidly for a moment by putting the syringe into the mixture and drawing it up and expelling it with considerable force. The oils and water will unite readily. Apply the emulsion to every portion of the plant infested with the mealy bug. Scale is killed by this emulsion; therefore its value in the greenhouse will be readily understood by those who have fought these two enemies unsuccessfully with other preparations. I am told that if 40 parts water are added to the oils, instead of 20, as advised above, a preparation is secured which kills the aphis.

For worms in the soil I use a preparation of lime water, Take a piece of fresh lime as large as a tea-cup. Put it in a pailful of rain water. It will dissolve, and a white sediment will settle

to the bottom, leaving the water above as clear as if nothing had been added to it. Pour this off, and use it on the soil in your pots. I have frequently advised this, but persons who have tried it have written to say that it amounted to nothing. On inquiry I have always found that their application of the lime-water was made in such homeopathic doses that it is not at all to be wondered at that they failed to secure successful results. Instead of putting on enough water to thoroughly penetrate all the soil in the pot, they applied it by the spoonful. To accomplish anything, enough must be given to wet the entire mass of earth. No one need fear getting too strong a solution, as the water can take up only a certain amount of lime, therefore there is no danger in this direction. In almost all cases worms in the soil can be traced to the use of manure from the barnyard. I much prefer to use some fertilizer which will not breed worms. There are preparations on the market which are equally as good as manure in bringing about the development of plants, and it is perfectly safe to use if the directions accompanying the packages are followed, and one has the satisfaction of knowing, when he applies it, that worms will not come from it.

The fir-tree oil used in making the kerosene emulsion cannot be obtained at the ordinary drug-store in many places. It may be necessary to send to some of the large plant-dealers who handle all kinds of florists' supplies for it.

The Care of House Plants.

It may seem to the person who has had but little experience in taking care of plants grown in the sitting-room or kitchen window, that it is the easiest thing in the world to take such care of plants that they will flourish satisfactorily. But such is not the case. While it is true that any one who loves plants can grow them well, it is also true that in order to do this they must go to work intelligently, and care for them scientifically, and to do this it is necessary that their requirements should be fully understood, and certain general rules followed. Unless this is done, one's plants will prove failures.

Therefore, in order to care for them properly, one must first know what needs doing, and the reason for it, and then act accordingly.

While certain general rules can be given, full instructions cannot be laid down which will apply to all cases, because there are always conditions of difference which must be duly considered. On this account one must use judgment, and modify the general rules to fit each individual case. It will be comparatively easy to do this when one has had a little experience with plants.

One of the most important items is that of watering. Some persons apply water frequently, and in small quantities. In such cases, as I have remarked in the preceding chapter, the result is often very disastrous, because there is not enough moisture to penetrate through the entire mass of soil, and the consequence is that while the surface appears moist, the lower portion is dry. I would therefore discourage the "little and often" practice. Another practice is, to water freely and regularly, without any regard to the condition the soil is in. This is quite as bad a habit as the other, for very frequently the soil is sufficiently moist, and to add more water is to make it wet, and the frequent application of water thereafter will keep it in that condition. Few plants will grow in mud.

The only safe rule to follow is this:

Water your plants when the surface of the soil in the pot looks dry—and not till then, except in cases where you know more water suits the plant, as in the case of the Calla, which is really a semi-aquatic.

But when you *do* water your plants, under the above rule, be sure to water *thoroughly*. That is, apply enough to make all the soil in the pot moist. About the only way to tell when enough has been given is to put on so much that a little will run out at the bottom of the pot. In most cases this will show that all the soil is affected by the application. If the drainage is good, there will be no danger of overwatering. Some plants will require watering daily, especially if in small pots. Others will not require watering oftener than every other day. Location, the heat of the room, and other influences act in the case, and all must be taken into consideration in order to understand the wants of your particular plants, which, very likely, will require a little different treatment from those of your neighbor's, because, as I have said, of the difference in conditions which are pretty sure to exist.

Some give warm water. Some give cold water. I am frequently asked which is best.

I take the water for my plants from a cistern just outside the greenhouse, and apply it alike to all plants, and I have never seen the tenderest injured by it. Well-water may sometimes be colder than cistern-water, but not generally is it so. I do not consider it at all necessary to go to the trouble of warming water for plants unless in exceptional cases, where the water is unusually cold. Then I would advise letting it stand in the room long enough, before applying, to allow the chill to pass off.

Some persons seem to have the idea that a saucer is provided with each pot for the purpose of holding water from which the soil in the pot is to soak up enough to meet the requirements of the plant. Such is not the case. This saucer is for the purpose of holding such water as runs out of the soil. Go into a greenhouse and you will find that saucers are not used there. They are useful only in rooms where something is required to prevent surplus water from running on the floor or carpet.

It is a good plan to stir the soil in the pots with a stick, or an old-fashioned fork. This prevents it from becoming crusted over, and allows air to get to the roots freely. It also puts it in a condition to take in water easily.

One of the principal drawbacks to the successful cultivation of plants in the ordinary living-room is the high temperature which generally prevails there. You will find most rooms far too warm. The plants are forced into unhealthy growth. A temperature of 70 degrees is quite high enough for most plants, and 65 degrees would undoubtedly be better, but the human occupants have become so accustomed to unhealthy degrees of heat that they would imagine themselves suffering from cold in a temperature below 70, and quite frequently you find it up to 80 or more. But few plants can stand this. Those that do so are never satisfactory.

In addition to the high temperature, we have intense dryness of air. The moisture is all burned out of it. Plants must have some moisture in the air, in order to do well, as well as at the roots. Much can be done to counteract the influence of this unnatural dryness by keeping water in pans on the register or stove to evaporate steadily. In addition to this, the plants should be showered daily. I say showered, not sprinkled. I would recommend for this purpose a brass syringe which throws a fine spray with such force that all parts of the plants can be reached. Do not be content with a slight application of water to the foliage of the plant, but put on enough to cover it with moisture as if it had just had a rain-bath. See that the underside of the leaves are as wet as the upper side. Such a showering not only helps the plant to breathe more freely, but it prevents the red spider from attacking it. It also keeps the leaves free from dust, thus adding vastly to

their appearance, for a plant coated over with dust is never attractive, and it cannot be healthy, because plants breathe through pores in the leaves, and a coating of dust clogs these pores to such an extent that the air cannot get in in sufficient quantity to supply the needs of the plant.

But do not shower your plants in summer when the sun shines upon them, because the heat is often intense enough to cause the leaves to blister from its effect on the moisture, which often collects and stands in drops. Wherever these drops stand on a leaf in strong sunshine, a black spot is generally left, or a blotch that looks as if hot water had been applied. It is a good plan to drop a shade between the plants and the light for a little time after showering them, if they stand in a sunny window. If showered at night this is, of course, unnecessary.

Plants should be turned about in the window at least once a week to prevent their becoming drawn over and one-sided. They reach out toward the sunshine, and before one becomes aware of it, unless she watches them very closely, their branches have taken such a turn toward the glass that it is hard work to get them back into symmetrical shape without staking them, and in order to get the greatest amount of pleasure from a plant as few stakes as possible should be used. If care is taken to turn the plants frequently, it is an easy matter to keep them shapely. Give all sides the benefit of the light.

Sometimes plants persist in sending out branches on one side while the other looks as bare as if you had gone over it with a pruning-knife. What you must do in this case is to cut back the branches that it puts forth, and keep them from growing until it has started branches on the vacant places. This you can force almost any plant to do by persistent effort.

If you want a plant to take on a tree-like form, keep it from sending out side-branches until it is two, three, or four feet high, as you may think best. Then cut off the end of it. In a short time it will send out branches. Some of these will be at the top, and some below the top, but all except those nearest its extremity should be picked off as soon as they start. Allow several at and near the top to grow. When they have reached the length of four or five inches nip the end of them off. This induces them to branch, and in this way you soon have a compact little head for your tree formed.

If you prefer a shrubby form for your plant, cut the main stalk back when it is about six or eight inches tall, and encourage the growth of several stalks instead of one, from the base of the plant. I prefer this plan to any other for such plants as the Chrysanthemum and plants of similar habit. Abutilons make pretty little trees, and take to that form readily.

Many plants are inclined to grow in awkward shapes if left to themselves. This is particularly true of the Geranium. Left to take care of itself it often sends up one long stalk which will have a tuft of leaves at the top, and nothing more. But a little training will make a most shapely plant of any Geranium, if given at the right time, which is, while the plant is young. By nipping off the top as soon as the stalk begins to grow freely, you can induce it to send out several other stalks near the base, and if these are nipped in turn, you eventually get a plant with a dozen or more stalks, and these can be made to branch at any desired height, so that it is a comparatively easy matter to make a compact, bushy specimen of the plant which, left to itself, would have made itself as awkward as it is possible for a plant to be. These bushy Geraniums will have flowering points all over them —every little branch being such a point—while an untrained plant will generally not have more than four or five, if as many. From this it will be seen that it pays to give a plant proper treatment while young, if you want it to take on a graceful form, and put itself in a condition to afford a liberal quantity of flowers. Old plants can be cut back and made to throw out new branches, but they can never be made as shapely and symmetrical as young plants which receive training while they are developing.

Most persons crowd their windows to such an extent that some of the plants suffer from lack of sufficient light, while all are injured because of lack of room in which to fully develop themselves. I would advise having fewer plants at the window, and these few finer specimens than those usually seen there. This can be done by allowing more room for each. Half a dozen fine plants will afford a great deal more pleasure than two or three times that number of ordinary plants, and half a dozen plants of fair size are quite as many as a window of the average size will accommodate satisfactorily.

Bulbs for Winter Blooming.

No collection of flowers is considered complete nowadays if it does not include a variety of bulbs so treated that they will come into bloom in mid-winter, when few other flowers can be depended on to furnish flowers.

The amateur florist can succeed with bulbs, in the house, if she will be guided by certain rules which experience has proved to be good ones; rules that it is imperatively necessary one should follow in order to insure success. A great many persons have an idea that about all they must do to get fine flowers from bulbs, in the house, in winter, is to put them in a pot of earth, give it a place in the window, and water it whenever they happen to think of it. These are the persons who "don't have any luck" with bulbs, and who tell all their friends that they aren't worth growing. The fact is, with proper and intelligent care, it is very easy to flower bulbs well, but without such care they are sure to fail. When grown as they ought to be, few flowers give better satisfaction, and, as I have said, no collection is complete without some of them.

It must be borne in mind that when we bring a bulb into bloom in winter, we are reversing the natural order of things, which is, that these bulbs shall be dormant at that time. It is, therefore, an unnatural process, but in order to obtain as great a degree of success as possible, we must follow out the methods of Nature so far as we can understand and imitate them.

If we plant a bulb in the garden in September or October, it will make no visible growth of top that season. But if you were to dig it up any time before the closing in of winter, and examine it closely, you would find that it had begun to make a root-growth. All the fall, after planting, and during the winter, it is making active preparation for work in spring. As soon as the snow melts and the sun shines, it will send up a top, and the vigor of its growth at this season depends largely on the condition in which its roots are. If there is a good development of them, this growth will be strong and healthy. If the roots are not strong, the growth of the top will be proportionately weak.

In potting bulbs from which we desire winter flowers, it is necessary, as I have said, to imitate the processes of Nature, and therefore the bulbs must be put away in the dark, after being potted, to form roots before they are placed in conditions which will induce them to make a growth of top.

If put in a light, warm place as soon as potted, roots and top would begin to grow at the same time, and as there would be no strong roots to nourish and support the top, the development of that portion of the plant would be weak, and if any flowers resulted they would be inferior. By potting the bulbs and putting them away in a cool, dark place until roots have formed we imitate the conditions which prevail when we put them in the ground. It is quite important that the dark place in which we store them should be cool, for too warm a place induces a premature top-growth. Absence of light and a low temperature encourages the formation of roots, because that is natural. In planting bulbs in fall, we hide them away from the sunshine, and the warmth which characterizes summer has gone by, and the soil in which we put them is cool, if not cold. Under such conditions, they form roots. Light and warmth are necessary to the formation and development of a vigorous, healthy top. Therefore, give the bulbs a chance to complete the formation of roots first, then bring them under conditions which will encourage a development of leaves and flowers. In this way, and in no other, we can grow bulbs well in the house.

I am told by many who have been advised to follow this plan of growing bulbs for winter-flowering that it is a "whim." But there is no whim about it. It is, as I have said, simply following Nature's plan. Those who study into the matter will see that it is strictly in accord with that plan. Those who have planted bulbs in the ground in spring, will be sure to tell you that they never get good flowers from them. The reason why they do not is, that they plant them under conditions which induce growth of root and top at the same time, precisely as is the case when we pot bulbs and put the pots containing them in the window, at once. There is a weak growth resulting in each instance, but never a healthy one, because we have interfered with the natural method, which is, that but one kind of work shall be done at a time. The first work to be done is the putting forth of roots, because they are necessary to the nourishment of leaves and flowers. The next stage is that of top-growth, which should be delayed until the completion of the first. When bulbs are planted in the ground in fall, Nature takes them in hand, and by her management of conditions she makes it easy for them to do such work as is necessary at that time, and no other. When we plant them in the house we must take the plant in hand, and regulate it as nearly as possible as Nature would.

From what I have said above, it will be understood, by giving the matter a little study and thought, that the method of starting bulbs which is advised is strictly scientific in its nature, if I may be allowed this use of the term. In other words, that it is a strictly natural one, or, at any rate, is one in which the processes of Nature are imitated as closely as possible under the conditions which prevail. I have made this somewhat elaborate explanation to convince the intelligent and thoughtful reader that it is not the "whim" that some ignorant persons assert it to be. Grow bulbs after this plan, and then try a few after the plan of those who declare it is entirely unnecessary to be to "all the trouble" of following the advice given, and I know which plan you will be likely to follow in the future.

The proper soil for bulbs in pots is made up of loam, well-rotted manure, and sand in about equal parts. It should be worked until very mellow, and the manure must be thoroughly in-

corporated with the other elements of the soil. On no account use fresh manure. It will always injure bulbs.

In potting bulbs of Hyacinth or Tulip, if six, seven, or eight inch pots are used, put several bulbs in the same pot. A much better effect is secured by massing them in this manner than can be secured by planting but one bulb in a pot. Two Tulips or Hyacinths can be grown in a five inch pot. Five or six can be grown in an eight inch pot. In potting the bulbs, press them down into the soil so that just the top of the bulb is seen above the surface. Then water well, and set them away to form roots.

It is generally advised to put newly-potted bulbs in the cellar. From this it must not be understood that a cellar is imperatively necessary to their successful culture. What is needed is a place where they can be kept dark and cool. The cellar may furnish these conditions, or they may be secured by sinking the pots in the ground, and banking up about them with coal ashes or anything that will effectually exclude the light.

Bulbs that are put out of doors to form roots will not be injured by freezing if allowed to thaw out gradually. On no account bring them into a warm place while frozen. To do that would be to put an end to your prospect of flowers from them.

After your bulbs have been in the cellar or the ground for a month, examine them. Turn the ball of earth out of a pot, and see if the roots have reached the outside of it. If they have, you can begin to bring the pots to the window, for you will know that roots enough to healthily support the top have been formed. But do not bring them all at once if you want a succession of flowers. By keeping some of them in a low temperature, the growth of top can be retarded. It is a good plan to pot bulbs at intervals of two weeks, for by doing this, and leaving some in the cellar a longer time, we can succeed in having flowers from bulbs for many weeks during the winter.

Most varieties will require to be left in the dark for at least a month, and some need a longer time in which to root well. All do not come forward alike. Some will very likely insist on making a growth of top shortly after being potted. If you find any that show an inclination to do this, it is well to bring them up at once, as they will keep on, after having begun, and if they are left in the dark they will amount to nothing. The reason why some bulbs begin to grow at once, after potting, is that they have been kept in conditions which incite premature development. Probably they have been stored in too light and warm a place. In a cooler, darker place they would have remained dormant.

Right here let me anticipate the question which many might like to ask relative to the care that should be given bulbs after they have completed their winter flowering. Do not attempt to carry them over for another season. While it is true that some bulbs may give a second season of bloom in the house, it is equally true that but few of them will do so. As a general thing a bulb that has been forced is worthless afterward. It cannot be depended on. It is much the best plan to buy fresh, strong bulbs each season.

On bringing your bulbs to the light, after they have rooted, do not put them in a very warm room. A temperature of 65 degrees is better for them than a higher one. In a low temperature, such as would correspond to spring weather, their development will be healthy, while a high one forces them unduly, and you are sure to get poor poor, short-lived flowers, if any. The probabilities are that in too high a temperature they will blast.

When in bloom, the cooler you can keep them the longer they will last.

Hyacinths often show buds shortly after beginning to grow. Indeed, leaves and buds frequently appear at the same time. Quite often, when the tip of the flower-spike is seen at such an early stage it seems to have exhausted itself in getting a start, and will make a very slow development. Sometimes the blossoms will be all in a bunch, down among the leaves. As soon as you notice a tendency on the part of the flower-stalk to not reach up as it ought to, make a paper cone the size of the pot, and, after cutting off about an inch of its apex, invert it over the plant. Through the hole at the top of the cone the light will exert its influence on the plant, and both leaves and flower-stalk will reach up toward the opening, and in this manner you succeed in coaxing the plant out of its sulkiness.

The Hyacinth is one of the most satisfactory of all bulbs for forcing. It comes in beautiful colors, is very sweet, and not one bulb in a hundred will fail to bloom if treated as I have advised.

I greatly prefer the single to the double varieties. They are surer to bloom, and the spike of flowers is more graceful because they are not so crowded as in the double sorts.

My favorite Hyacinth is the Roman. Several stalks of flowers are thrown up from each bulb. The flowers are loosely and gracefully arranged, and the prim effect peculiar to the ordinary varieties is lacking. They are deliciously sweet. They come in pink, white, blue and pale yellow. You get more flowers from them than you do from the ordinary varieties because the latter seldom throw up more than one stalk from each bulb.

Among the Tulips the single sorts are generally selected as being most sure to give satisfaction.

The Narcissus or Daffodil is one of the most charming bulbs we have, and all collections of winter blooming plants should include at least a dozen of them. The Chinese "Sacred Lily" belongs to this family. They should be given the same treatment as is advised for Tulip and Hyacinth. The best varieties for forcing are:

Princeps, a magnificent flower, with rich yellow trumpet and perianth of pale sulphur.

Trumpet Major, rich yellow.

Horsfieldii, trumpet, rich yellow, pure white perianth.

Maximus, orange, large.

One of the popular forcing flowers is the Bermuda Lily, better known, perhaps, as the Easter Lily, because it is brought into flower largely about that time. If I were to confine myself to one bulb, I should choose this. Nothing can be finer than a large specimen of this noble plant, crowned with a great cluster of trumpet-shaped flowers of the purest white, and most delightfully fragrant. I grow a great many of them

HYACINTH.

every season, and have excellent success with them. My method is to put three or four large and healthy bulbs in each nine or ten inch pot. I fill the pot about half full of such compost as I have advised for other bulbs, and press the bulbs of the Lily down into it well, but do not cover them. Then I set the pots away in a shady place—but it need not be very dark or cool—as it has been my experience that they will not make top-growth until good roots have been formed, whether in or out of the cellar. As soon as the stalk begins to put up, add more earth, and as it reaches up fill in about it until you have the pot full of soil. The reason for doing this is that the roots which support the stalk are sent out above the bulb. By giving it earth to put forth these roots in, it will not be necessary to furnish a stick for its support.

Lilium Longiflorum is, by some, considered superior to *L. Harrissii*, the Bermuda Lily, because of the greater substance of its flowers. Many try to bring Lily of the Valley into bloom in the house, and almost always they fail because they give it the treatment advised for bulbs. The "pips" should be procured from some reliable dealer—not a bunch of weak, inferior ones chopped up from the run-out plants in the garden. Keep them frozen, if possible, until you are ready to force them. Then put them in moss, and place them where they can have a steady heat of eighty or ninety degrees. The moss should be kept moist at all times. They should be shaded with cloth until the stems are two or three inches high. Then the shading should be removed in order to give the flowers a chance to develop. This treatment, you will observe, is such as can hardly be given in the living-room. A greenhouse is needed for forcing this flower. I cannot advise the amateur to undertake its culture in winter if he has only an ordinary window in which to grow it.

BERMUDA LILY.

Some of the Best House Plants.

It would be impossible, in the limits assigned me, to give a complete list of the plants adapted to culture in the house. I shall therefore, in this chapter, speak of the best only—that is, those which succeed best under such conditions as generally prevail in the house.

The Geranium.

At the head of the list I would place the Geranium. This plant succeeds where others fail. It blooms freely the greater part of the year. It is rich and varied in color. It requires the very minimum of care. Any one can grow it,

GERANIUM.

and successfully, who will give it the soil and water it needs, and keep it from freezing.

It does well in any garden loam made light with sand. If some leaf mold or turfy matter from the roadside or beneath the sods of old pastures is added, all the better. Water should only be given as the surface of the soil in the pot seems to be dry. Then give enough to moisten the soil all through.

This plant does best in a temperature that does not exceed 65 deg., but can stand one of 70 or 75 deg. better than most plants. Fifteen or 20 deg. lower at night seems to suit it well.

There are so many fine sorts that it is a very difficult matter to select the best. Perhaps the following among the flowering varieties include the most distinct sorts adapted to general culture:

Mary Hallock Foote, white, with salmon center. Very fine.

Souvenir de Mirande, peachy-pink, suffused with white in such a manner that it is hard to tell whether pink or white predominates. A "fancy" variety. Always in bloom. One of the best.

Master Christine, bright carmine-rose, with white eye and markings. A great bloomer.

Advance, rosy scarlet.

Jewel, crimson.

Mrs. Jas. Vick, salmon.

Marguerite de Layers, pure white.

The above are single sorts. These I consider

FUCHSIA.

best for the house. I have named but one variety of each color. You will find long lists of most desirable kinds in all the catalogues, and nearly all are good.

The double varieties are better adapted to bedding out.

Among the variegated sorts, I like Mad. Salleroi best. It is a low, bushy sort, with pale green foliage bordered with white. It requires no training, and always has a profuse quantity of pleasing odor. Dr. Livingston has finely-cut foliage, and is excellent for cut-work. The Nutmeg and Apple Geraniums have small leaves, possessing a spicy, fruity odor.

The Ivy-leaved section is of slender habit of growth, and must be given a trellis or some similar support. Their leaves are shaped like those of the English Ivy, hence the name. Their flowers are double and single, in a great variety of colors.

ABUTILON.

foliage, which is something that cannot be said of the tall-growing green and white varieties. It is excellent for use among other plants, as its green and white leaves are almost as attractive as flowers. Marshal MacMahon is a variety having dark-green leaves heavily zoned with brown. Happy Thought has a green leaf blotched with yellow at the center. A few plants of these varieties add greatly to the attraction of a window in winter, or at times when there are few flowers.

Among the fragrant-leaved kinds, the Rose stands at the head for beauty of foliage and

Fuchsias.

These flowers are summer bloomers, with but one exception. Speciosa will bloom in winter, and all the year round if allowed to do so. I cannot advise any other variety for winter culture.

This plant likes a light, spongy soil. Leaf mold and sand, drained well, suits it exactly. Shift from time to time as the roots fill the old pots. If allowed to get dry at the roots, or to become pot-bound, the leaves and buds often droop. Great care must therefore be taken to see that the soil is always moist, and that the roots

have considerable space to spread in. Shower the foliage freely every day. This is important, as the red spider likes to work on this plant, and will do so unless it is kept moist.

There are a great many varieties, both double and single. Two of the best double sorts are Phenomenal, very large, sepals scarlet, corolla purple, and Mrs. E. G. Hill, sepals scarlet and corolla white. Elm City is a scarlet and purple

PRIMULA OBCONICA.

sort of medium size. It is one of the best. Among the single kinds, I like best Convent Garden, white sepals and rose corolla, and Rose Perfection, white and rose. Rose of Castile, white and violet, is very fine. Speciosa has flesh-colored sepals and red corolla. Do not attempt to make winter bloomers of any other variety. Let them bloom in summer, as they will, with the greatest profusion, if properly cared for, and put the plants in the cellar in November. There keep them rather dry. Bring them up in March, give water and light, and they will soon start into growth. Cut them back at least half, repot, and in a few weeks they will begin to bloom.

Abutilons.

This plant, often called Flowering Maple, because of the resemblance of its foliage to that of our native Maple, and sometimes Chinese Bell-Flower, because of the shape of its blossoms, is one of the very best house-plants we have. It grows freely, blossoms continuously, and is seldom attacked by insects. It does well in the soil recommended for general use. It can be trained in tree-form, or allowed to take on a shrubby shape. The following varieties are among the most distinct and desirable:

Boule de Neige, pure white.
Crusader, dark crimson.
Golden Fleece, clear yellow.
Roseum, pink veined with white.

There are several varieties with handsomely variegated foliage, the best being Eclipse, of drooping habit, with leaves thickly blotched with yellow. This is fine for use as a bracket-plant.

Primula Obconica.

This plant I consider one of our very best

house-plants, because of its very easy culture and its free and constant habit of flowering. It is never without flowers. It is not as showy as some plants, because of its color, but it is very beautiful, and those who give it a trial will not willingly be without it afterward. Its foliage forms a thick mass at the top of the pot, above which it throws up slender stalks, bearing clusters of flowers, sometimes pure white, sometimes tinted with lilac. These flowers are small, individually, but there are many in each cluster, and the effect is very fine. One of our very best

BEGONIA.

plants for winter use. It requires a good deal of water.

Hoza.

This plant, generally called Wax Plant, because of the thick texture of its leaves, is a vine. It does well in rooms where there is considerable warmth. It can be trained over the window or on a trellis. Its flowers are star-shaped, flesh-colored and chocolate, and very sweet. They are produced in pendant clusters at intervals during the year. Do not disturb the roots of this plant if you want it to bloom well. Do not cut off the stems where flowers are produced, as other flowers will be borne on them at the next season of flowering.

The English Ivy.

If asked to name the best vine for house-culture, I would at once choose the English Ivy. It has very beautiful foliage, of a rich, dark green, and grows rapidly, sending out branches here, there, everywhere, so that an old plant seems a perfect fountain of foliage. The older it grows the more attractive it becomes. Of the easiest culture. This is one of the few plants that will do well in comparative shade.

The Begonia.

The Begonia is a most popular house-plant, because it has beautiful foliage, fine flowers, blooms freely and almost constantly, and is of such easy culture that any one can succeed with it. It does best in a light, fibrous soil, of leaf mold. Water moderately, but never allow it to get dry. Keep in an east window, or, if in a southern one, out of the hot sunshine.

There are many fine sorts. The following are among the most desirable of the flowering kinds:

Rubra, coral red. Always in bloom.

Wiltoniensis, pink, with very beautiful foliage. A great bloomer. One of the best.

Semperflorens Gigantea Rosea, a remarkably strong grower, with very large, rich foliage and cardinal red flowers.

Sulton's Snowflake, pure white.

There are many varieties having finely variegated foliage, of which I would advise the following for general cultivation:

Manicata *aurea*, leaves dark green, irregularly marbled and blotched with creamy white and rich yellow. Very fine and easily grown.

Alba picta, upright grower, leaves spotted with white.

Argantea guttata, leaves of a bronzy olive, marked with silver. A strong grower.

Albia, very beautiful, green and olive, with rich veinings.

Its flowers are mostly lavender and purple, or grayish blue. They are of most exquisite fragrance. If the plant is given plenty of water, kept in a sunny window, and cut back from time to time, it will bloom the year round. Excellent for use in small bouquets.

CARNATION.

Diadema, large leaves, of palmate character, heavily spotted with white.

Metallica, bronze green, veined with crimson. Very fine.

The Rex Begonias are not adapted to general house culture. The varieties named above are nearly as fine, and do as well in the sitting-room as the flowering kinds.

The Heliotrope.

This is an old favorite, and deservedly so.

Carnation.

The Carnation stands next to the Rose in popularity. It is a beautiful flower, and its spicy sweetness gives it an additional charm. It would surprise the reader if he knew how many hundreds of acres of this flower are grown under glass, for the winter trade, in all the large cities. Many growers cut thousands of flowers daily, during the entire season.

In growing it for the house, I would advise planting the young plants in the garden bed

during the summer. Watch them closely, and as soon as you see a flower-stalk, cut it off. Do not allow one flower to grow in summer. By cutting the plant back, you oblige them to become bushy and compact, and you get a much better plant for winter use. Give a soil of garden loam, without leaf mold. Drain it well. Do not keep very warm, but give plenty of sunshine. Shower daily, or the red spider will attack the plants.

The following are excellent varieties:

Silver Spray, pure white.

Grace Wilder, delicate pink.

Tidal Wave, pink.

AMARYLLIS.

Portia, scarlet.
Col. Wilder, scarlet, flaked with maroon.
Buttercup, yellow, marked with carmine.
Do not give very large pots.

The Calla.

An old favorite. The foliage, in itself, is very attractive, and the plant would be well worth growing if it had no flowers. The blossoms are creamy white, large, and borne on long, stout stalks, lifted well above the foliage. To grow this plant to perfection, one must give it a very rich soil. The finest specimen of this plant that I ever saw was grown in a tin powder-can as large as an ordinary pail. The bottom was punched full of holes. This can was placed in a large pail containing liquid manure, which the roots of the plant drank up at will. The result was leaf-stalks nearly four feet tall, and twenty-one flowers from one plant during the winter. The Calla likes a good deal of water while growing, and does best if allowed to get dry during the summer. This gives it alternate periods of growth and rest, which is natural, as the plant comes from the Nile, where, at certain seasons, everything is flooded, and then a drouth comes on, during which the soil in which the plant grows becomes perfectly dry.

The Amaryllis.

The Amaryllis is a magnificent plant for window culture. Its large, lily-shaped flowers, of rich colors and stately habit, always attract attention and admiration. Many persons fail with it because they keep it growing all the time. This is wrong. Growth should be encouraged until it ceases—that is, the growth of foliage. When no more leaves are sent up, withhold water, and allow the soil to get moderately dry.

CYCLAMEN.

Generally, a flower-stalk will be the first indication of renewed growth. If the plant does not intend to bloom, new leaves will be the first indication of growth. Then give water more freely until the growing period comes to an end. By giving alternate periods of growth and rest, the culture of this bulb can be made successful, but by keeping the plant growing all the time, or rather, by keeping it moist at the roots all the time, and consequently in a condition favorable to growth, it becomes weakened to such an extent that it often fails to bloom.

There are several superb sorts to be obtained

at reasonable prices. Among these are:
Johnsonii, scarlet, striped with white.
Equestro, salmon-pink, blotched with white.
Aulica, rosy scarlet, with green stripe.

season. The foliage is very prettily marked with silvery green on a dark ground. The flowers are rosy crimson and magenta, of peculiar shape, freely produced.

CACTUS.

Cyclamen.

This plant is well-known as a good winter bloomer. It is of the easiest culture. Care should be taken to have about one-third the corm below the surface of the soil. Keep quite dry in summer, and in a cool, shady place. In September, give more water, and start it into growth. I would advise getting new roots each

Agapanthus.

A beautiful summer-bloomer, with thick, fleshy roots. An evergreen, therefore it can be kept growing the year round. In May or June it throws up stalks three or four feet tall, bearing immense clusters of small, lily-shaped flowers of a delicate blue, striped with white. Very fine.

Imantophyllum.

This is a member of the Amaryllis family, but is not bulbous. It has thick, fleshy roots like the Agapanthus. At intervals, during the year, it sends up a stalk a foot or more in height, bearing from six to a dozen blossoms of a soft orange with yellow throat, shaped like a Lily. Of the very easiest culture. An evergreen, therefore to be kept growing all the time.

Vallotta.

A member of the Amaryllis family, blooming every year in August and September. Its flowers are of a very rich scarlet. Treat like Imantophyllum. Disturb the bulbs as little as possible.

Cacti.

This class of plants is well-adapted to culture in living-rooms, as it likes a warm place, and does not suffer from dry air as many other plants do. The Phyllocacti are among our most magnificent flowering plants. Their flowers are of the richest colors and striking form. The Epiphyllums are very free bloomers, and will grow under most unfavorable conditions. But it pays to give these plants good care. If one is unfamiliar with the Cactus family, I would advise her to send to A. Blanc, 314 North Eleventh St., Philadelphia, Pa., for "Hints on Cacti"—a very valuable little book on the culture of this most interesting class of plants, which will be sent free. The grotesque forms assumed by many varieties gives them a sort of fascination for the student of plants, which soon develops into a genuine Cactus craze. In this class is found the Night-Blooming Cereus, and other celebrated varieties, of which we frequently read or hear mention made.

CHINESE PRIMROSE.

Achania.

A constant-flowering plant, of habit similar to that of the Abutilon. Flowers scarlet. Never attacked by any insect. Not a free bloomer, yet never without a few flowers. One of the most reliable of all plants. Can be kept for years, and renewed from time to time, by cutting back sharply.

Cestrum.

This is a member of the Jessamine family, of exceedingly easy culture. Grows rapidly in a rich loam. C. *auranticum* has tubular yellow flowers, borne in spikes. C. *porquii* is the night-blooming variety, having greenish-white flowers which emit a very rich, powerful odor after nightfall. Both varieties become good-sized shrubs.

The Chinese Primrose.

This is one of the best winter-bloomers we have. It is too well known to require description. The single and double white varieties have long been cultivated by plant-growers, almost to the exclusion of the pink, red and darker sorts. The florists have lately taken this plant in hand, and some of the new strains are wonderful improvements on old varieties, both in size and color of the flowers. Be sure to have half a dozen plants of this Primrose. Give a

light, spongy soil, and pot high—that is, have the crown of the plant elevated above the surface of the soil well, so that water, when applied, will run *away* from the crown and toward the sides of the pot. If allowed to run about the crown, and stand there, decay often sets in, and in a short time the plant is injured. I would advise getting young, strong plants each year in spring.

Impatiens Sultani.

This plant, sometimes called Zanzibar Balsam, is an ever-bloomer. It bears scores of flowers, daily, of a soft carmine, which contrasts well with the rich green foliage. It likes a good deal of water and a light, spongy soil. Give a shady place. A very bright, cheerful, attractive plant.

Ferns.

Some varieties of Fern can be grown quite successfully in the house, if care is taken to give them proper soil, and it is kept moist at all times. Leaf-mold and sand suits them better than loam. Pteris *tremula* is a pretty variety. P. *argenta* is a variety having a strip of silvery white down the center of the fronds, and is a charming plant. Adiantum *cuneatum* is a delicately fronded sort that always attracts attention. There are many other varieties from which selection can be made, but I would not advise choosing the delicate kinds, as they do not succeed in living-rooms. They must have a moist atmosphere. Nephrolepsis *exaltata* is the Sword Fern, and is excellent for baskets. Its long fronds are sent up from the roots in great profusion. This does well in the sitting-room, if kept moist at the roots.

Othanna.

One of our very best hanging plants. Flowers yellow. Fond of the sunshine.

Sanseviera.

A plant having long, thick foliage of green, curiously mottled with gray. Of the easiest possible culture. Will grow in shady places where nothing else will. Fine for halls and vestibules. Capable of standing heat, dust, and dry air much better than any of the Palms. A very desirable plant.

FERN.

Oxalis.

Another good basket-plant, also fond of sunshine. Flowers pink, freely produced, and very sweet. Foliage like that of clover. Grown from tubers.

Plumbago.

A free-flowering, shrubby plant, having flowers shaped like those of the Phlox, in loose clusters. Their color is a most delightful, soft blue—a quite unusual one among house plants. Of easy culture. Cut the branches back well after each period of blooming. New ones will soon be sent out, and these will produce new flowers. P. *capensis* is the blue variety. P. *alba* is white. P. *rosea* has red flowers. P. *capensis* is the best sort.

Oleander.

A favorite small tree or shrub. A great bloomer during the summer months. Its large clusters of rosy-carmine flowers are almost as beautiful as Roses. Give this plant a light, rich, sandy soil, and plenty of water while growing. Cut back from time to time, to make it bushy and compact. Can be wintered in the cellar, where it should be kept pretty dry. Large specimens are very beautiful when in bloom.

CHRYSANTHEMUM.

The Chrysanthemum.

No plant is more popular to-day than the Chrysanthemum. And this is not to be wondered at, because no plant blooms with greater profusion, or is easier to succeed with.

The secret of successful culture of the Chrysanthemum is rich soil—it can hardly be *too* rich, and plenty of water. Given these, with considerable root-room, fine plants can be grown by any one. Small pots should be used at first. Shift the plants as the pots become filled with roots. From three inch pots, for the young plants, to ten and twelve inch pots for large plants, the change being made in three or four shifts, is about right. Let the soil be strong, rich, and mellow. Water daily, and in liberal quantities. Make it a point to *never* let the plants get dry at the roots. If they do, they will be checked, and from this check they will never recover fully.

There are so many fine varieties that it would be useless to attempt to make a choice here. Consult the catalogues, and select such colors, from each class, as suit you best. I think the Chinese varieties give the best satisfaction.

After blooming, the tops can be cut off, and the pots set away in the cellar. Give no water during winter, unless the soil is in danger of getting dust-dry. In spring, bring up the pots, and water well. In a short time sprouts will be sent up all over the surface of the soil. Cut these apart in such a manner as to retain a piece of root with each, and put them off into small pots. Then proceed as advised above.

I shall not extend this list. Those who succeed with the kinds named can add to their collections by selecting from the catalogues. Grow these well, and you will be able to undertake the cultivation of others requiring more careful treatment. But confine yourself to this list until you have acquired the experience which justifies you in "branching out."

I have not included the Rose, because I find it almost impossible to grow it well under such conditions as generally prevail in ordinary living-rooms. No plant is more difficult to grow well, and unless one can grow a plant well it is better not to attempt its cultivation. If one cares to experiment with Roses, I would advise Queen's Scarlet, Agrippina, crimson, and Hermosa, bright pink. Success will come with these varieties, if any.

Plants for Decorative Purposes.

So prevalent has the use of Palms, Ficuses and other plants of similar character become, at receptions, parties of all kinds, and, in fact, for daily home-life decoration of the hall and parlor, that a demand is growing for a better and more practical knowledge of what plants will succeed under such conditions as usually prevail in the rooms in which they are to be used, also the proper care to give them to keep them in health.

Perhaps the most popular plants for decorative purposes are the Palms, because of their peculiar and striking foliage; also because they are plants that stand a good deal of neglect without immediately showing the result of it. One fine specimen of the Palm family will do more to produce a fine effect in the parlor or hall than a dozen ordinary plants. The half-dozen ordinary plants will be passed without notice, while the fine Palm will always attract attention because of its dignity, which is bound to assert itself under all conditions.

There are many varieties of the Palm in cultivation among florists, but there are but few sorts adapted to general decorative purposes.

Latania *Borbonica* is one of the "stand-bys." It is not a tall grower, but it is useful for prominent places where tall plants would not answer, as before a mirror, or at the base of a piece of statuary. Its leaves are broad. Their edges are split into segments. In color it is a rich dark green. This variety stands the dry air of the living room better than any other with which I am familiar. It is one of the plants that improve with age.

Phœnix *reclinata* is a variety quite unlike the one just described in habit. Its leaves are long and pinnatified. They are thrown out in all directions from the crown of the plant, and as they remain in good condition a long time, an old plant will often have twenty-five or thirty at a time, and the effect is that of a fountain of foliage. Of easy cultivation.

Seforthia *elegans* is of most graceful habit, having long and beautifully arched leaves. Nothing can be finer for the center of a group than a fine specimen of this variety. It is not so easily grown as the two sorts described. It must be given perfect drainage, and be kept entirely free from scale, in order to remain in health. If over-watered, you soon see the effects of it by the tips of the leaves turning brown.

Chaperops *excelsa* is another good kind for general cultivation. It is something like Latania Borbonica in habit, but has leaves still more deeply split.

Areca *lutescens* is one of the most beautiful varieties in cultivation. Indeed, if I were to select but one for general use, I think it would be this. Its foliage has a plume-like form that is extremely graceful, and the habit of the plant is very neat.

Cocos Wedeliana is the daintiest of all Palms in general appearance. Its leaves are almost as delicate as those of some varieties of Fern. A small plant is a charming ornament for the table at a dinner party. It must have the best of drainage, be showered daily, and kept perfectly free from all insects if you would succeed with it.

Washingtonia robusta. This is a variety from southern California. It is of quite rapid growth, and on this account will better suit many amateur florists who are impatient of results. This kind is very fine for use on porches, verandas, and in the garden in summer.

The roots of nearly all varieties of the Palm have an inclination to run down rather than spread out. This being the case, deep pots are much better suited to their needs than shallow ones.

While most varieties are fond of water, they do not want so much of it that the soil becomes wet, like mud. Provide drainage if you want your plants to do well. That given, there will be very little danger of over-watering.

A good soil for Palms is composed of loam and turfy matter, with some sand mixed in. Give them a partially shaded location at all times, and be sure to keep them out of the hot blaze of the summer sun if you want them to retain their rich green color.

Showering is very important. In applying water to the foliage, do it thoroughly. See that water reaches every part of them. If this is always done, you will have them always clean, therefore ready for use in the parlor at any moment. The red spider will not attack them if they are showered daily and thoroughly, and a stream of water thrown against them forcibly will dislodge the mealy bug, and keep him from getting established on them. Scale often attacks them. In order to get rid of this pest, you will have to scrub the stalks and leaves with a stiff brush, dipped in soapsuds. An application of the emulsion of kerosene, advised in another chapter, will put this pest to rout.

Ficus *elastica*, better known as Rubber Plant, is admirably adapted for use in rooms where the air is dry, and the thermometer gets away up among the eighties, because of the thick, resistant texture of its foliage. Its leaves are generally ten or twelve inches in length, four or five in width, and very thick. They are very persistent, if the plant is properly cared for, and a well-developed specimen ought to have foliage all along its branches. If neglected, they fall off, and none ever come to take their places. A plant without foliage along its branches is not particularly pleasing, therefore it is well to do what can be done to prevent loss of foliage. It is generally too little water, too dry an air, and too hot a room, or too small a pot that causes the leaves to drop. See that the soil is always moist, and never allow the pot to become crowded with roots. Any good soil seems to suit it. Wash

the leaves at least once a week to keep them clean and prevent insects from getting a foothold.

Grevillea *robusta* is quite unlike any other plant used for general decorative purposes. Its foliage is so finely cut that it is often mistaken for some variety of Fern. It grows to be quite a tree, and on this account it is very highly prized for use in rooms where a tall specimen is wanted. It is quite a rapid grower. Young specimens are as valuable as older plants, because they are always graceful and symmetrical in form, and they can be used as dinner-table decorations.

A rather light, rich soil suits this plant. It is very tractable, and can be trained in any form desired, as it branches freely. Give good drainage, water freely, and shower daily.

Aucuba Japonica. This plant is generally known as the Gold Dust Plant, because of its peculiar variegation. The leaves are quite large, of thick and heavy texture, and a glossy, dark green in color, and seem to be covered with a shower of yellow particles, which are nothing but a variegation of yellow, so finely and evenly distributed that they simulate a powdering of gold. This plant is excellent for use among larger ones.

Euonymus *variegata* is a plant having beautiful foliage of richest green, edged, blotched, and uniquely marked with bright yellow. It grows in the form of a tree with but little training, and is always useful. Its bright yellow is a good substitute for flowers. One such plant, among others having plain green foliage, lights up the collection wonderfully, and enhances the beauty of all of them by the contrast of color it affords. This, as well as the Aucuba, likes a somewhat heavy soil of loam. Water well and shift to larger pots as the roots fill the old ones. Shower well to keep down the red spider, and if scale or mealy bug attacks them, apply kerosene emulsion.

Araucaria is a plant seldom seen in home collections. It is sometimes called Moreton Bay Pine. It is an evergreen, having foliage something like that of our native Hemlock, though hardly as flat, and not as evenly disposed on each side the branch. It grows very symmetrically without training. A fine, large specimen is a magnificent ornament to any room. Its gracefully arched branches, thickly set with leaves, its rich, dark color, and its peculiar appearance, make it noticeable wherever seen. Keep it out of doors in a shady place during the summer.

Aspidistra is an excellent plant for "filling in." By that, I mean that it has the habit of growth which adapts it to use among other and taller plants. Its foliage is about a foot and a half long, sent up directly from the roots, on stalks perhaps six inches long. The surface of the soil soon becomes covered. As the foliage spreads out above the pot, a specimen soon produces a massive, "low-down" effect, which makes this plant a most useful addition to the list of plants suitable for room decoration. The leaves are thick in texture, dark in color, and very lasting. A. *lurida variegata* is a variety having foliage broadly striped with white. Some leaves will be half white, half green; others will have several stripes of white on a green ground. This plant is of the easiest possible cultivation. Give it a soil of loam and leafmold or spongy matter from old sods, a shady place, and plenty of water at its roots and overhead, and it asks no more. I know of no plant that requires less care. I have never known it to be attacked by any insect. It is always healthy. It is always in presentable condition.

The old English Ivy is not used in the decoration of rooms as much as it ought to be. Because of its habit of growth it can be used with telling effect in situations where other plants are useless. Train some of the long branches about the arch of a doorway, instead of thin-foliaged Asparagus or Smilax generally used there, and notice what a dignity it gives the place. Let it run up the side of the mantel and mass itself over it, with its branches falling carelessly at the other side, and note the difference between it and most vines used for room decoration. Smilax and Asparagus answer very well for table decoration, but for places where a more strong and massive effect is desired, the Ivy is much more suitable.

Give it a soil of loam and sand, well drained. If the soil becomes worn out, add some bone-dust to it. A very large pot is not needed.

This plant is quite subject to attacks of scale. In case this pest gets established on it, apply kerosene emulsion. But prevent his getting a foothold by frequent showerings and washings of the plant. In applying the emulsion, the best method is to coil the vines in a tub and then pour a large quantity of the emulsion over them. In this way you are sure that every portion of them is reached.

The Ivy does better in a shady place where no direct light comes than any other plant I know anything of. Especial care should be taken to keep this plant in a healthy condition. If it suffers from lack of nutriment, from too little water, or from attacks of insects, it drops its leaves often, and when the vines are naked a great portion of their length, the beauty of the plant is sadly marred. When this takes place, I shift the plants to larger pots or tubs, and coil the naked portion of the branches about the plant, just below the surface of the soil. Here they throw out roots and the plant goes on growing as if nothing had happened.